

R. P. Hinds
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FM 7-5

WAR DEPARTMENT

**INFANTRY
FIELD MANUAL**



**ORGANIZATION AND TACTICS
OF INFANTRY
THE RIFLE BATTALION**

FM 7-5

INFANTRY FIELD MANUAL

ORGANIZATION AND TACTICS OF INFANTRY THE RIFLE BATTALION

**Prepared under direction of the
Chief of Infantry**



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INFANTRY FIELD MANUAL

ORGANIZATION AND TACTICS OF INFANTRY; THE RIFLE BATTALION

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PART ONE

INFANTRY CHARACTERISTICS AND ORGANIZATION

CHAPTER 1

MORAL QUALITIES, LEADERSHIP, AND TRAINING

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SECTION I

THE INFANTRY SOLDIER

■ 1. **DECISIVE ELEMENT IN WAR.**—Man is the final and decisive element in war. Combat is a moral struggle, and victory goes to the side which refuses to become discouraged. Numerical factors, armament, equipment, and technical training affect morale but at the same time derive their full value from the moral qualities of the soldier.

■ 2. **MAIN OBJECTIVE OF TRAINING.**—The main task in the making of a soldier is to inculcate ideals of military conduct which permit military technique to be utilized effectively. In general the ideals of the individual will be the military standards inculcated in and accepted by his unit.

■ 3. **MORALE.**—Morale is affected by many influences. In large part it rests upon the soldier's confidence in himself, his comrades, and his leaders. To build and sustain the spirit of comradeship is the leader's greatest task. The soldier must be taught to accept responsibility for the welfare and the actions of his team mates. He must feel that the record of his organization is his record. He must avoid any act or word that may spread despondency. He must refuse to be disheartened by hardships or reverses. Often his best contribution to victory will be the encouragement of others.

■ 4. **DISCIPLINE.**—*a.* The soldier is disciplined when he has learned to place the mission of his unit above his personal welfare and to conform his action to the will of the leader. Discipline carries with it the spirit of teamwork and mutual trust.

b. Response to leadership.—The soldier gives his entire loyalty to his leader in return for loyalty to him and his comrades. In battle his attitude is modeled on that of his leaders. In peace he adopts the standards of military conduct held up by leaders whom he respects and admires.

c. Citizenship training.—Soldierly ideals are the more easily acquired if the ideals of the individual's civil environment provide a suitable basis. The task of making soldiers will be more difficult when considerable citizenship training is required. Organizational unity is much easier to attain where a strong faith in national institutions underlies the soldier's loyalty to his leader and his unit.

SECTION II

THE GROUP AND UNIT

■ 5. **COHESION.**—*a.* Men are grouped primarily with a view to their training for and use in combat. The combat group acquires cohesion through common experience. Individuals constantly trained, quartered, and fed together develop a feeling of solidarity. Drill, if held to simple, precise movements for short periods, rapidly develops group feeling. The soldier identifies himself with the group, gives it his allegiance, and conforms to its standards.

b. The time required to develop military group cohesion depends on many factors, such as the ability of the leaders, the methods of training, and the ideals brought from civil life by individuals. A military organization emerges only when a cohesive group united by common military ideals, confident in its skill in arms, has been developed. Individual skill with weapons alone will not give a group the cohesion necessary to fill the role of Infantry in battle. Infantry units fight in small isolated groups, often removed from the direct influence of officers, and derive their cohesion from the unity inculcated by association and training. The time required to develop a cohesive military group exceeds the period needed to train the individual in the various military skills.

■ **6. ESPRIT DE CORPS.—a. General.**—(1) Every effort is made to develop the pride of individuals in their group. Commendation and especial privileges promptly awarded for group excellence stimulate unit esprit. Individuals may be criticized or punished for falling below the group standard, but group penalties separate the leader from his group and destroy cohesion. The public opinion of the group is the most powerful lever of discipline and the most effective means of bringing about conformity with military standards.

(2) The soldier gives his allegiance in varying degree to different groups. The company is usually the unit which inculcates group ideals of conduct. Higher units derive their moral unity chiefly through the cohesion of the officers. The history and battle record of the troops attach chiefly to the regiment which forms the object of the soldier's deepest sentimental devotion and inspiration. Battalion and company solidarity, though essential, should not be developed at the expense of regimental group feeling. Occasional resort to competition has value for the purpose of stimulating interest, but systematic competition between companies tends to break the regiment into jealous groups and impairs its teamwork.

(3) So far as practicable, platoons and squads should be kept intact and given the greatest possible degree of permanence. They are elementary tactical teams which are held together in battle by the spirit of comradeship and the direct personal influence of their leaders.

b. Group standards.—The individuals of a unit habitually act in accordance with the military standards which the group has accepted. The proper standards are inculcated by the leader through constant example and suggestion in various ways. Formal instruction as to desirable ideals is of little avail. Violations of accepted group standards must be punished promptly. Repressive measures are, however, only for the few who are not strong enough to observe the standards they recognize as correct or who are inherently inadapted to military purposes. Such measures are not the bases for the government of units. When esprit de corps is high, condemnation by the public opinion of the group constitutes the main support of discipline.

c. Basis of group unity.—Group ideals are based on national ideals and patriotism. Methods of training and employing soldiers are adapted to the American characteristics of individual initiative, self-reliance, and responsiveness to leadership. American unity is derived from community of ideals. National differences between people of foreign descent rapidly vanish in America. The soldier is instructed in the simple principles of American government and the elements of American history.

SECTION III

THE LEADER

■ 7. **NECESSITY FOR LEADERSHIP.**—The condition for group solidarity is efficient and respected leadership. The vitality of a military unit flows from the full exercise of leadership in every grade. Commanders who are merely good administrators may obtain superficial results in training; in battle their results will prove a disappointment.

■ 8. **DUTIES AND QUALITIES.**—*a. General.*—Leaders must develop the physical vigor, self-denial, willpower, and knowledge that will enable them to master difficult situations. The salient American characteristics of courage, self-reliance, initiative, and vigor provide excellent foundations for the leadership which can itself rise above the depressing influences of the modern battlefield and at the same time carry along the members of the group.

b. Example.—The leader must manifest to the highest degree the soldierly qualities which command the respect of his unit. He must share his troops' hardships and dangers.

c. Care of troops.—The leader must understand and appreciate the thoughts, problems, and feelings of the troops. In the development of an organization the first duty of a leader is the welfare of his men. Only when he has met this demand will there be that unity in his group which is the basis of victory. He makes every effort to protect the rights and interests of the troops. He does not fatigue them or expose their lives unnecessarily. He will, thus, in critical situations, on the march or in combat, be able to secure from every man the expenditure of his entire moral and physical force.

d. Force.—The leader requires strict and complete obedience. He intervenes decisively and promptly where there is any relaxation of discipline or damaging influence. Where necessary to the execution of his mission, he demands and receives from his unit the complete measure of sacrifice.

e. Firmness and justness.—The leader brings about conformity with required standards through the firm and impartial administration of justice. Standards required of trained troops should be gradually applied to a newly organized formation.

f. Sense of responsibility.—(1) The leader must have a firm character and a sense of responsibility. He must be able to make prompt decisions in combat. Hesitation and indecision are more dangerous than errors in the choice of means.

(2) The leader does not in the presence of the unit add his criticism to adverse comments made by a higher commander. He accepts responsibility for the deficiency then and thereafter.

g. Initiative.—The leader must not only possess initiative himself but he must foster its proper exercise by others. During training periods he avoids infringing upon the prerogatives of his subordinates. In combat he cannot be everywhere, and in his absence his subordinates must feel free to act vigorously in accordance with their mission and the situation, without awaiting precise instructions covering every point. They must feel that they will be supported in their exercise of a proper initiative.

h. Newly assigned leaders.—A newly assigned leader who takes over a battle unit is under critical observation. He must demonstrate qualities of leadership to take his place as leader in the minds of the group.

■ 9. LEADERSHIP OF HIGHER INFANTRY UNITS.—*a.* Leaders of units higher than the company seldom deal directly with individual members of groups. However, their interest in the welfare of the men and their presence during training serve to impress their personalities upon the troops and to reinforce the efforts of immediate commanders.

b. Inspections and ceremonies give the troops an opportunity to see, hear, and sometimes speak to the higher commanders. Words of praise on such occasions, when appropriate, mean much to the men. Blame should be used sparingly. An admonition from a high commander frequently humiliates the individual or offends group esprit. In general, private correction by the unit commander is preferable to harsh public censure of individuals. The most effective public criticism is that which indicates wherein the individual has failed his group. Censure of a group commander within hearing of the group tends to destroy his usefulness. Such censure, when justified, should call for his replacement.

c. In critical situations the high infantry commanders go forward to show themselves, participate in the danger, and instil confidence as well as make decisions based on observation and personal knowledge. Before moving into an exposed area, they must consider the fact that for the time being their control over reserves and supporting weapons may be impaired and that they cannot return to their posts until the crisis has passed.

SECTION IV

TRAINING DOCTRINES

■ 10. GENERAL.—The fundamental training doctrines are prescribed in FM 100-5, FM 21-5, and in this manual. Special instructions in regard to military training are published in periodical training directives.

■ 11. OFFICERS.—*a. Duties and training.*—The training of officers is continuous throughout their service. Theoretical

instruction is accomplished by means of troop schools (AR 350-2600), the various schools of the military educational system (AR 350-5), and by individual application and study. It is the duty of every officer to apply himself to the study of his profession in order to increase his knowledge and proficiency in the duties he may be called upon to perform. It is the duty of every commander to encourage and assist his subordinates in their efforts to increase their professional knowledge and attainments. The practical training of officers is derived from actual experience in command or staff duties appropriate to their grades.

b. Objectives of schools.—Troop schools are important agencies of a unit commander in the training of his unit. The objects are to—

(1) Prepare the personnel of the command to carry out the current training program or prospective operations.

(2) Coordinate and insure uniformity in the training and action of the command.

(3) Provide basic instruction for newly appointed officers.

c. Applicatory exercises.—The principal means of imparting tactical instruction to officers comprise applicatory exercises, such as map problems, terrain exercises, and tactical rides or walks, and field and combat exercises. Command post exercises are valuable for the training of staffs. Leaders and troops are trained in application of combat fundamentals in field exercises and maneuvers.

d. Avoidance of excessive specialization.—Infantry officers should become familiar with the various types of infantry units. This is a responsibility of regimental commanders. Infantry officers likewise must become familiar with the powers and limitations of the associated arms. In particular it is desirable that artillery, armored forces, and aviation be included or represented in battalion or regimental exercises.

e. Training plans.—It is the duty of every commander to make the necessary plans for the training of his command. Commanders of units down to and including battalions prepare and issue programs prescribing the general plan for training the command over an extended period of time. Schedules prescribing detailed instruction for the conduct of training in accordance with the program are issued by command-

ers of companies and similar units for all training within the unit and by a higher commander for such training as is to be conducted under his personal direction. Schedules are usually issued weekly. They apportion the time available to the several subjects of instruction.

f. Supervision.—Supervision of training is a function of command and is carried out, when practicable, by the unit commander in person. It may consist of daily supervision, training inspections, or tactical inspections. Daily supervision is informal and should not interrupt the continuity of training. Except for cogent reasons, intervention in the work of a subordinate while he is engaged in the training of his unit should be avoided. The regulations governing training and tactical inspections are given in *FM 21-5.

■ 12. NONCOMMISSIONED OFFICER.—*a. Role.*—The noncommissioned officers are the leaders and instructors of their units. All basic instruction of enlisted men is given by noncommissioned officers. Observance of this fundamental greatly increases the prestige of group leaders and enhances the discipline of the group.

b. Scope of training.—Sergeants assigned the platoons are trained as platoon leaders. Where practicable in rifle companies, sergeants assigned to rifle platoons are also trained as leaders of mortar and light machine-gun sections. They are instructed in the tactics of composite groupings, such as the rifle platoon, reinforced by a light machine-gun section, acting as an outpost support; advance or rear party or reconnaissance detachment.

c. Schools.—The purpose of schools is to equip noncommissioned officers with the necessary knowledge and skill to lead and instruct their units in an effective manner. They teach the tactical procedure governing the employment of small units and develop the pertinent methods of instruction.

d. Administrative and disciplinary responsibility.—Noncommissioned officers should become accustomed to the exercise of command through the performance of administrative and disciplinary duties as well as the duties of instructors and tactical leaders. Each leader should be taught that his

*See appendix III.

exercise of authority over his unit is complete and extends to all phases of the soldier's life. He should be held to his responsibilities.

■ 13. TRAINING OF INDIVIDUALS.—*a. Physical.*—The physical fitness, endurance, and condition of individual members of a command are among the most important concerns of those responsible for training. Details of physical training are contained in *FM 21-20. Voluntary athletics should be encouraged, and quickening exercises, group games, and mass athletics included in the training program so as to provide a certain amount of athletics for every man in the command. Officers encourage, supervise, and at times participate in the athletics of their units. A limited participation by officers in competitive games as members of unit teams is permissible as a means of stimulating interest but should not be encouraged as a systematic practice.

b. Development of offensive spirit.—Training is so conducted as to prepare the troops for eventual offensive warfare. Troops are initially grounded in the elements of defensive action in order that they may not only be qualified for emergency defensive missions but also have an understanding of the problem of the individual soldier and the small unit in attack. From the beginning of his training the soldier should be imbued with the spirit of individual aggressive action.

c. Combat instructions.—The combat instruction of the individual soldier and group begins at an early period of the soldier's service. Training in technical subjects should be concurrent with training in basic subjects. Training in elementary tactical subjects should not be postponed pending attainment of a high standard of proficiency in basic disciplinary training and the care and use of weapons. (See par. 214.) Concurrent training in different subjects affords variety and stimulates the interest of the soldier.

■ 14. TACTICAL EXERCISES OF UNITS.—In the early stages of training, each tactical exercise is limited to a definite phase of combat. Attempts to cover several phases in a short period are rarely remunerative. Critique of tactical exercises is

*See appendix III.

based upon the manuals or regulations. Tactical exercises of units should include combat situations where the units are operating with supported flanks as well as acting alone on detached missions. The tendency to devote excessive attention to situations of the unit acting alone or semi-independently to the neglect of instruction of the unit operating as a part of a larger force must be controlled. Rehearsed tactical exercises are prohibited.

CHAPTER 2

MEANS OF COMBAT

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SECTION I

INDIVIDUAL WEAPONS

■ 15. RIFLE AND BAYONET.—*a.* The rifle is the primary weapon of the individual fighter. It is a flat-trajectory shoulder weapon suited for frontal fire and for use against distributed targets. Supplemented by the bayonet, it is the arm for hand-to-hand fighting. The rifle fires ball ammunition against personnel and airplanes. Its armor-piercing ammunition is effective against lightly armored vehicles or airplanes at close range. Tracer ammunition is used by leaders and scouts to point out targets and determine ranges and as an aid to antiaircraft (AA) fire control.

b. The semiautomatic rifle, M1, is capable of approximately 20 to 30 aimed shots a minute. The M1903 rifle is reloaded by hand operation of the bolt and is capable of a rate of about 10 to 15 rounds a minute.

■ 16. AUTOMATIC RIFLE.—The automatic rifle is a rifle that fires ammunition on the automatic principle with recoil supported by the body of the firer. The Browning automatic rifle is capable of rapid production of a large volume of concentrated fire and offers a small target when in action. An automatic rifleman has the marching mobility but not the capacity for short bursts of speed of the rifleman. The automatic rifle is not suited for sustained fire for long periods or for indirect or overhead fire. In the attack, the difficulty of keeping the automatic rifle supplied with ammunition and its inferiority in combat mobility to the rifle lead to its retention as a reserve of automatic fire for use in the critical emergencies of combat to support the attack of the rifle

squads. In defense, automatic rifles are the principal weapons of the rifle platoons, and except where the platoon is assigned an unusually wide sector of fire, they cover the entire platoon fire sector. By reason of their superior mobility, automatic rifles are used in preference to machine guns in advance of the outpost line of resistance. The automatic rifle is a particularly effective weapon against hostile aircraft at very low altitudes.

■ 17. **PISTOL.**—The automatic pistol or the revolver is an arm of emergency and individual defense at close quarters (ranges up to 50 yards) for personnel not armed with the rifle or the automatic rifle. It is not suited to the purposes of collective action.

■ 18. **HAND GRENADE.**—The hand grenade is a curved-trajectory weapon complementary to the rifle and bayonet of the individual skirmisher. It is used against an enemy sheltered behind cover to cause casualties or force him into the open. The grenade is hand thrown. Its radius of effect is from 15 to 30 yards, depending on the type of grenade. Small particles capable of inflicting serious wounds may travel as far as 100 yards from the point of detonation. Its short range (30 to 45 yards) prevents the use in open warfare of grenades having a wide radius of effect. The difficulty of supply and distribution, together with the weight of the projectile, limits the number which can be carried by the soldier and restricts its offensive use. The difficulty of supply largely disappears in the defense. Special types of grenades are used for lachrymatory or irritating gases.

SECTION II

RANGES AND ALTITUDES

■ 19. **RANGES.**—For general infantry purposes ranges are classified as follows:

	<i>Yards</i>
Short.....	Point blank to 200.
Close.....	200-400.
Midranges.....	400-600.
Long.....	600-1,500.
Distant.....	Beyond 1,500.

■ 20. ALTITUDES.—Altitudes of aerial targets are designated as follows:

	<i>Feet</i>
Very low-----	0 to 200.
Low-----	200 to 1,000.
Medium-----	1,000 to 3,000.
High-----	Beyond 3,000.

SECTION III

CREW-SERVED WEAPONS

■ 21. TRANSPORTATION.—Crew-served weapons and their ammunition are transported on motor weapon and ammunition carriers or pack animals. These regulations relate to infantry units equipped with motor transportation. In combat the weapons, except antitank (AT) gun, usually require manhandling; the carriers keep ammunition as close to the weapons as practicable.

■ 22. MACHINE GUNS.—*a. General.*—The machine gun is a weapon that fires small-arms ammunition automatically with recoil supported by a fixed mount. Machine guns are classified as light and heavy machine guns (cal. .30) and antitank machine guns (cal. .50).

b. Light.—The light machine gun is air-cooled and relatively mobile. Its crew can maintain the march rate of a rifleman but cannot move at the high speed of the individual rifleman. It delivers a large volume of fire rapidly and accurately. The capacity of the gun on its ground mount for overhead, indirect fire, and antiaircraft fires is limited. Its characteristics fit it for use in the attack for the close support of the smaller infantry units by flanking action; in defense, to supplement the action of heavy machine guns. Within midrange its accuracy is sensibly that of the heavy machine gun.

c. Heavy.—The heavy machine gun is water-cooled. Filled with water, it weighs 40 pounds. The mount weighs 52 pounds. The limit of the useful range is about 3,500 yards. Effective direct, aimed fire is limited by observation. Effective indirect fire is limited by the maximum range of the gun and the conditions for securing fire data. The heavy machine

gun lacks the mobility of the light gun, but its more stable mount gives it greater accuracy at long ranges. It is capable of overhead and indirect fire and has great capacity for sustained fires. The latter characteristics render it pre-eminently the automatic weapon for use in the defense and for the delivery of protective fires in the attack. Over level or uniformly sloping ground, the danger space is continuous for a distance of 750 yards from the muzzle of the gun.

■ 23. MANHANDLED ANTITANK WEAPONS.—*a.* Antitank weapons of the lighter class have the following general characteristics:

Weight of individual load, not in excess of 55 lbs.

Number of loads, two to three.

Armor penetration, $\frac{1}{2}$ to 1 inch at 500 yards.

Rate of fire, automatic or semiautomatic.

Caliber, .50 to .80.

b. Antitank weapons in the lighter class must be sufficiently mobile to keep pace with the leading troops, independent of animal or motor transport. They vary widely in ballistic characteristics and power.

■ 24. MORTARS.—*a.* 60-*mm.*—The 60-mm mortar is a highly mobile and accurate curved-trajectory weapon, using an explosive projectile weighing approximately $3\frac{1}{2}$ pounds, with a useful range of about 1,000 yards. The barrel and tripod together weigh 28 pounds, the base plate 23 pounds. Its rate of fire may reach 20 rounds per minute. The weight of its ammunition exacts economy in expenditure in offensive operations. The mortar is adapted to overhead fire, to fire from masked positions, and to fires against defiladed targets. It is habitually employed close to the front line and is quickly adaptable to changes in the tactical situation of small rifle units.

b. 81-*mm.*—There are three shell for use with this weapon: a light explosive shell; a heavy explosive shell; and a heavy smoke shell. The light explosive shell has a useful range of 2,000 yards. The range is, however, limited by observation rather than the ballistic properties of the piece. The heavy explosive shell used against matériel and emplacements has a maximum range of 1,500 yards. The barrel, bipod, and

base plate each weigh approximately 45 pounds. Compared with the 60-mm mortar, it has greater power and less mobility; its ammunition is heavier; and its adjustment of fire is comparatively slow because of the long time of flight of the projectile at the longer ranges; its rate of fire after adjustment and its other characteristics are approximately the same.

c. *Employment.*—The mortars can more readily engage targets of opportunity than artillery and are more suitable for use against point targets.

■ 25. **ANTITANK GUN.**—The 37-mm antitank gun is a flat-trajectory weapon of the field gun type weighing 950 pounds with its carriage. It fires armor-piercing and high-explosive shell. It pierces 1½ inches of armor at 1,000 yards if impact occurs at 90° to the surface or not more than 20° therefrom. It is very accurate and has a rate of fire of from 15 to 20 aimed shots a minute. It is normally drawn by a 4 by 4 half-ton truck and can be moved only for short distances by hand. The primary mission of the 37-mm gun is to furnish antitank defense. In attack, it is also effective against concrete emplacements.

SECTION IV

TOOLS AND OTHER EQUIPMENT

■ 26. **INTRENCHING TOOLS.**—a. *General.*—The intrenching tool is an important article of equipment of the infantry soldier.

b. *Portable.*—Infantry soldiers, with a few exceptions, are equipped with some form of portable tool: shovel, pickmattock, hand ax, or wire cutter. The portable tool suffices for digging individual pits and hasty emplacements and clearing fields of fire when heavier tools are not available.

c. *Heavy.*—Heavy tools are furnished by engineer units and are distributed to the Infantry when required. A set carried on one vehicle is sufficient for an infantry battalion. It includes pickmattocks, shovels, and a supply of axes, saws, large wire cutters, tracing tape, sandbags, and other pioneer equipment.

■ 27. PROTECTION AGAINST CHEMICAL AGENTS.—The gas mask is issued to all individuals. It gives full eye and lung protection against war gases in concentrations likely to be encountered in the field. The diaphragm mask is issued to officers, telephone operators, and others whose duties require audible speech. Protective clothing designed for the protection of the body against gases of the mustard type may be furnished. Individual and collective protective equipment and the principal chemical agents and their characteristics are described in FM 21-40.

■ 28. OBSERVATION AND TOPOGRAPHIC EQUIPMENT.—The Infantry is provided with field glasses and telescopes and with simple mapping equipment (compasses, plane tables, sketching cases).

■ 29. SIGNAL COMMUNICATION EQUIPMENT.—*a. Means.*—The normal means of signal communication for the Infantry includes messengers, arm-and-hand signals, sound-and-light signals, the telephone, telegraph, radio, pyrotechnics, panels, and airplane pick-up devices. Other devices may be issued for use in special situations. The powers and limitations of the various means are described in FM 24-5.

b. Codes and ciphers.—Signals transmitted to airplanes by signal panels are prescribed in the air-ground liaison code. The pyrotechnic code is prescribed by the high command and is frequently changed. The division field code is used for condensing messages and maintaining secrecy. It is furnished to message centers of divisions and lower units to include battalions. The Infantry is also provided with a cipher device, the use of which is explained in FM 24-5.

CHAPTER 3

GENERAL ORGANIZATION OF THE INFANTRY

■ 30. GENERAL.—The details of infantry organization, the allotment of weapons, and the distribution of the major items of equipment and transportation are shown in current Tables of Organization. Minor changes resulting from developments in weapons may be expected from time to time.

■ 31. INFANTRY UNITS.—*a. Squad.*—(1) The squad is the elementary combat unit. It is the largest infantry unit habitually controlled by the voice and signals of its leader. A well-trained squad constitutes a team capable of resisting the disintegrating influences of battle and carrying out its assigned mission.

(2) The rifle squad consists of a leader, a second-in-command, and five to ten riflemen.

(3) Personnel armed with weapons heavier than the rifle—i. e., the automatic rifle, light machine gun, light mortar, heavy machine gun, caliber .50 machine gun, heavy mortar, and antitank guns—are organized in squads for purposes of control. In general, these squads consist of a squad leader and a gun crew to operate one or more of these weapons.

(4) For purposes of control, weapon squads are equipped with light and heavy machine guns. 60-mm mortars and 37-mm guns are grouped into sections which generally consist of two squads and a section leader.

b. Rifle platoon.—Rifle and automatic rifle squads are grouped together in the rifle platoon. The platoon is the smallest unit with capacity for deployment in depth and width and endowed with independent power of maneuver. It includes no weapons appreciably less mobile than those of the rifle squad nor any weapons presenting considerable relief in firing position.

c. Company.—The company is the basic infantry unit with administrative and supply functions. It comprises a company headquarters and several platoons with the agencies necessary for their control, subsistence, and administration. Companies are classified as combat companies and headquarters and service companies.

(1) Combat companies of rifle regiments include rifle companies, antitank gun companies, and heavy weapons com-

panies. The rifle company combines the action of several rifle platoons with that of a weapons platoon. It is the smallest unit which habitually organizes a base of fire in attack. It contains only elements which have a normal march mobility approximating that of the rifleman. The light machine gun and the light mortars follow the riflemen by covered approaches; the bursts of speed of the rifleman are not required of them. Heavy weapons companies comprise machine-gun, mortar, and antitank platoons. The antitank gun company comprises three platoons.

(2) Headquarters companies are principally constituted by groups charged with collecting information and disseminating orders and instructions. They may include other elements not large enough to justify a separate supply and administrative overhead.

(3) Service companies furnish staff, supply, and transportation personnel, and operate transportation.

d. Battalion.—The rifle battalion is the basic tactical unit of Infantry. It consists of a headquarters and a headquarters detachment, three rifle companies, and a heavy weapons company. The battalion constitutes a complete infantry unit capable of assignment to a mission requiring the application of all the usual foot Infantry means of action. Organically, it includes no weapon which cannot be manhandled over a distance of several hundred yards.

e. Regiment.—The infantry regiment is the complete tactical and administrative unit. The regimental commander, in addition to coordinating the action of his own units in battle, usually motivates the action of a varying allotment of weapons of supporting arms, particularly artillery.

■ 32. INFANTRY STAFFS.—Infantry regimental and battalion commanders require staff assistants. Procedure governing the exercise of command and staff functions, responsibility, authority, and methods are presented in FM 100-5 and in FM 101-5. Simple methods are particularly essential in infantry staffs, which are relatively small. Memoranda should be used merely to supplement direct contact methods. Infantry staff officers must be interchangeable and work in complete coordination and cooperation.

PART TWO

COMBAT

CHAPTER 1

BASIC FACTORS OF INFANTRY COMBAT

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SECTION I

CHARACTERISTICS OF INFANTRY COMBAT

■ 33. MISSION OF INFANTRY.—*a.* Infantry is charged with the principal mission in combat. It is the basic arm; the missions of the other arms are derived from their ability to contribute to the execution of the infantry mission. (See FM 100-5.)

b. Infantry is the arm of close combat. It is equipped with an armament adapted to the execution of its mission. But the mission of Infantry rather than its armament distinguishes it among the combatant arms. Its armament includes all the weapons that habitually operate in the forward zone. The heavier infantry armament must be sufficiently mobile to maintain constant contact with the riflemen.

c. The infantry mission in the attack is to close with the enemy and capture or destroy him; in defense, to hold its position and repel the hostile attack.

■ 34. CHARACTERISTICS OF INFANTRY COMBAT.—Infantry action is characterized by the aggressive fighting spirit and intelligent initiative of all ranks. Infantry operates in the zone of intense hostile fire and is obliged to adopt extended formations. Even small tactical units are distributed over a considerable area, and battlefield control is difficult. Infantry subordinate leaders see only a small portion of the battlefield and often fight in ignorance of the general situation and results obtained. They direct the local combats which make up the battle.

■ 35. FORMS OF ACTION.—*a.* Decisive results are usually obtained by means of offensive action. Such action is stressed in infantry training. However, the superiority in numbers, matériel, morale, discipline, training, and leadership, contributing to a successful offensive, usually will not be present in all parts of a theater of operations or battle front at the same time. Infantry is consequently called upon to execute defensive missions.

b. The high command determines the general attitude to be observed in various portions of a theater of operations. However, the local combats in which Infantry is involved are never entirely offensive or defensive; consequently the Infantry must be capable of passing rapidly from the defensive to the offensive and vice versa.

■ 36. OFFENSIVE CAPACITY.—*a.* Infantry unassisted has inherent offensive capacity when permitted freedom of maneuver by the situation or when it is opposed only by improvised resistance. With limited assistance from other arms in the early stages of combat, Infantry is capable of overcoming advanced and partially isolated hostile elements, and in later stages an enemy whose dispositions have been dislocated by the combined action of all arms. With limited assistance Infantry is capable of effective offensive action against a surprised or a hastily deploying enemy whose fires are poorly coordinated.

b. Infantry's offensive power decreases when its freedom of maneuver is restricted by continuous coordinated resistance. It is most reduced by conditions requiring a frontal advance against an organized defensive position. In such situations the concentration of powerful supporting weapons becomes essential to successful offensive action.

■ 37. DEFENSIVE CAPACITY.—Infantry defensive power reaches the maximum when the situation limits the offensive to frontal attack and permits the defender to effect an intensive fortification of the terrain, to develop a dense network of coordinated fires, and to rest his flanks on impassable obstacles. Even in such situations, successful defensive action requires air, armored, antitank, and artillery support.

SECTION II

DUTIES OF INFANTRY COMMANDERS IN COMBAT

■ 38. GENERAL.—Infantry commanders meet their responsibilities by intelligent anticipation; timely decisions, plans, and orders; and supervision of execution.

■ 39. ANTICIPATION AND PLANNING.—In combat, time is a vital factor. Infantry must frequently be engaged on comparatively short notice. Rapidity of engagement depends as much on the arrangements of the commander as on the execution by his men. Haste in execution cannot make up for time lost through lack of planning. Moreover, the action of troops hurried into battle without adequate preparation is necessarily defective. Infantry commanders must therefore habitually apply time-saving measures. The necessary preparations for combat, including reconnaissance and the formulation and issuance of orders by commanders, the movement of troops into assembly areas or positions in readiness, and arrangements for supply and communication are carried on concurrently, so far as is possible. Technical means of communication must be exploited to insure prompt transmission of information. Warning orders permit subordinates to make timely preparations in anticipation of the final orders. Rapidity of maneuver must be sought through timely preparation but must not be attained by neglecting reconnaissance and essential steps in the organization of combat action.

■ 40. ESTIMATE OF SITUATION.—An infantry commander must engage his unit according to a definite plan and not permit it to drift aimlessly into battle. The plan is based upon an estimate of the situation (see FM 101-5), in which the commander considers the mission of his unit, the means available to him and the enemy, the conditions in his area of operations including terrain, and the results possible as to future action. In his estimate, an infantry commander is usually concerned with the method of executing a clearly defined mission assigned by a higher commander. The estimate is comparatively brief and simple. It is based upon

available intelligence, amplified by personal reconnaissance, and the reconnaissance of subordinate officers and patrols.

■ 41. RECONNAISSANCE.—The personal reconnaissance of an infantry commander must be carefully planned. Before starting he should have all available information concerning the situation, the exact purpose of his reconnaissance, what to look for, the time available, and the route to be taken. Aimless reconnaissance, without specific purpose or direction, is, usually of slight value.

■ 42. ORDERS.—*a.* Orders of infantry commanders are brief, clear, and definite. They are usually oral and frequently in fragmentary form. An infantry regiment or brigade may issue written orders later, confirming and consolidating oral or fragmentary orders. Field orders follow a standard sequence (FM 101-5).

(1) Notes prepared by a commander prior to the issuance of an oral order facilitate the issuance of the order and insure that no essential item is omitted. An operations map or sketch (FM 101-5) issued to subordinates just prior to issuance of an oral order often facilitates the understanding of information and instructions received.

(2) Transmission of oral orders is facilitated in the preliminaries of battle by the assembly of subordinates to receive instructions. During battle such procedure is seldom advisable. When practicable, subordinates are assembled at a place from which important terrain features within the field of operations are visible. The commander, before commencing the issuance of his order, thoroughly orients his subordinates on the ground or on the map or sketch. Orientation consists of a brief description of the location of the place where the order is being issued. Terrain features which will later be referred to in the order should then be designated by pointing, by compass bearing, by name, by arbitrary letter or number designation if the name is unknown, or by a combination of these methods. A prominent object or terrain feature, employed as a reference point, assists in the location of terrain features on the ground. To insure the terrain orientation of his subordinates, the commander may, before proceeding

with his order, require them to point out those terrain features with which they are most concerned.

(3) Having completed the orientation, the commander commences the oral order, speaking slowly enough to permit the taking of notes. He phrases his instructions in a clear, simple style using terms best understood by his subordinates. He frames his order as nearly as practicable with the same directness, brevity, and sequence as are observed in written orders. He excludes details which are not essential to the execution of the mission of subordinates and which burden their attention and memory. He avoids loose conversational exchanges which weaken the force of orders and create uncertainty. To correct an error or omission, he announces "Correction" and repeats the corrected instruction or the entire order if necessary.

(4) Fifteen minutes are usually required for the issuance of an oral regimental or battalion order for an attack. A time interval of at least $1\frac{1}{2}$ hours is generally required between the beginning of the battalion commander's personal reconnaissance and the hour of attack. More time is allowed when practicable. Orders for a defense usually require more time than attack orders. (See par. 106.)

(5) The commander, having completed the order, invites questions and answers them with patience and thoroughness. Conversely, subordinates uncertain as to the meaning of any portion of the order ask to have doubtful points clarified. When mutual understanding is complete, watches are synchronized.

(6) The subordinate who receives an oral field order records as much of it as necessary under the circumstances. Brief notes, marks on his map or sketch, or both, usually suffice. Notes so taken should present a clear conception of the situation and the mission assigned the unit, so that in the event the writer becomes a casualty his successor is able to understand the notes and carry out the order. Where practicable, each unit above a platoon should be represented by two leaders or staff officers.

(7) Orders should reach every subordinate leader concerned in their execution in sufficient time to afford him opportunity to make his own reconnaissance, plans, and dis-

positions, issue his own orders, and carry out his preliminary movements prior to the hour set for the beginning of the operation.

(8) Where time does not permit the assembly of subordinate leaders and the issuance of complete orders, they are issued to subordinate leaders concerned in fragmentary form.

b. For further details see FM 101-5.

SECTION III

FIRE, MOVEMENT, TERRAIN

■ 43. METHODS OF ACTION.—Foot Infantry has two principal means of action: fire and movement. There must be the closest possible coordination between them in order that Infantry may close with the enemy and break his resistance. Fire destroys or neutralizes the enemy and must be used to protect all movement in the presence of the enemy not masked by cover, darkness, fog, or smoke. Through movement, Infantry places itself in positions which increase its destructive powers by decrease of the range, by the development of convergent fires, and by flanking action.

■ 44. FIRE.—a. The conditions of infantry combat require that supporting weapons be kept well forward; fundamentally, weapons crews must be able to see their targets and the location of their own front line from the close vicinity of the weapons emplacements. The rapidity with which situations develop requires that the means of meeting them shall be immediately at hand and that these means shall be distributed along the front.

b. Infantry fire is observed against point or line targets. Foot Infantry does not have at its disposal sufficient ammunition and adequate matériel for covering extensive area targets. When such area targets are in question, Infantry must rely on the other arms or tanks.

c. The flat-trajectory fire of Infantry has highly destructive effects against unsheltered personnel. If well directed, it inflicts the severest losses on exposed troops and pins them to the ground or drives them to cover. Against troops

under cover, flat-trajectory fire has only neutralizing effects. Infantry fire has limited power against material objectives.

d. The fires of the various infantry weapons require coordination. The flat-trajectory weapons pin the enemy to the ground and cause him to seek shelter; the fire of curved-trajectory weapons reaches an enemy protected from flat-trajectory fire. Infantry frontal fire attains its maximum effect through alternation in the action of high-angle and flat-trajectory weapons as required by the location of its targets. Frontal fires combined with flanking fires produce destructive convergent effects.

■ 45. MOVEMENT.—a. Infantry is adapted to movement on all kinds of terrain. Its ability to move in small and inconspicuous formations minimizes the effects of hostile fire and permits the use of covered routes of approach for its advance, and minor accidents of the terrain as firing and cover positions.

b. Infantry maintains battlefield mobility by the use of motorized weapon and ammunition carriers to keep heavy weapons and their ammunition in supporting distance of the attacking echelon.

■ 46. TERRAIN.—a. The terrain exercises an important and often a decisive influence in tactical situations. It usually dictates the dispositions of infantry units and their plan of maneuver or defense plan. Small infantry units have only a limited latitude in the choice of the terrain of operations. They must make the best possible use of the terrain of the zone of action or sector to which they are assigned. Minor detours in approach and in the displacement of reserves and supporting weapons are permissible to take advantage of cover in adjacent zones cleared by the advance of neighboring units. Especially exposed areas in both attack and defense may be left vacant to be covered by flanking fires or the long-range fires of supporting weapons.

(1) Gently sloping open terrain permits full use of the flanking action of flat-trajectory infantry weapons and hence increases the power of the defense against infantry attack. Conversely such terrain offers little cover to attacking foot troops but favors tank attack. Strong tank or

artillery support is required to permit Infantry to attack successfully over such terrain without severe losses.

(2) Broken terrain limits the defender's field of observation and flat-trajectory fire and offers cover by which attacking foot Infantry may approach a hostile position; it tends to contract defensive dispositions and reduce distribution in depth. Broken terrain makes difficult the battlefield control by commanders of all but the small infantry units and renders artillery support of the attack difficult and comparatively ineffective. Defensive positions located on terrain of this character require increased density of occupation of forward defensive areas and an increased allotment of curved-trajectory weapons.

(3) Rolling terrain affording some cover and facilities for observation is the most favorable for attacking foot Infantry. Crests, ridges, woods, or other features which extend generally parallel to the direction of advance divide the terrain into corridors which are natural avenues of penetration. Assignment of a tactical unit to each corridor enables attacking units to make direct provision for dealing with hostile elements capable of bringing fire on troops of the unit. Ridge lines perpendicular to the direction of advance permit an attacker to deal successively with elements of the hostile position, so that only a relatively small area need be neutralized at one time. During the advance these crests offer the attacker facilities for observation and fire, as well as shelter behind which he may reorganize his units and reconstitute his base of fire. Movement across ridge lines must be carefully planned, as leading elements of the attacking troops are particularly visible to the enemy at the moment that their supporting fires tend to become least effective. The visible horizon will therefore usually delimit an infantry maneuver phase and often constitutes an initial objective. Bands of wooded terrain parallel to the front have a similar effect.

(4) Conspicuous terrain features, such as isolated knolls, small woods or thickets, farm houses, roads, lanes, and other conspicuous objects, which may serve as readily designated targets or reference points for hostile artillery fire, should be avoided. Long, narrow terrain compartments which lead

in the general direction of a defensive area form advantageous corridors for attack. Troops advancing within such a corridor are defiladed from direct hostile fire from outside the corridor, especially from the direct fire of flat-trajectory weapons. Activity within the corridor may be also defiladed to a greater or lesser extent from ground observation from points outside the corridor.

c b. For the influence of terrain on the selection of a defensive position see paragraph 94.

CHAPTER 2

OFFENSIVE COMBAT

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SECTION I

BASIC FACTORS

■ 47. **SURPRISE.**—Surprise is an essential element of a successful attack. Its effects should be striven for in small as well as in large operations. Infantry effects surprise by concealment of the time and place of the attack, screening of its dispositions, rapidity of maneuver, deception, and the avoidance of stereotyped procedures.

■ 48. **FIRE SUPPORT.**—An overwhelming fire or tank support is usually required to permit an attacker to advance against strong resistance. Deficient fire support cannot be compensated for by the engagement of masses of additional men. Whenever the means made available to Infantry are deficient in kind or amount, it is a primary duty of commanders to arrange for additional supporting fire.

■ 49. **SUCCESSIVE OBJECTIVES.**—*a.* Until the main hostile resistance has been broken, infantry units advance by bounds on successive terrain lines where the fire support for each subsequent bound is organized. Each of the terrain lines becomes the objective of one bound of movement and the location of the base of fire for the next. The first regimental objective will usually be the mask covering the hostile artillery; the initial battalion objective includes the principal zone of enemy resistance. Unit objectives should not, as a rule, be beyond the range of the supporting weapons of the unit or

call for a displacement of the fire base to insure continuity of support.

b. More than one objective may be designated in the attack order of larger units; normally only the initial objective is designated by commanders of smaller units prior to the attack. The commander who designates an intermediate objective also prescribes the conditions under which the attack will be renewed therefrom. Arrangements must be elastic; the attack is not tied to a time schedule over any extended period. The pause on each terrain line is as short as is consistent with an effective organization of the base of fire and may be greatly reduced with weakening in the hostile resistance. Effective fire should be exploited promptly by maneuver. The rapid advance of infantry is the indispensable condition of victory. For decisive success, Infantry must reach vital objectives before enemy reserves can be thrown across its path. (See par. 61c.) Timely reconnaissances, early initiation of fire base displacements, and skilful handling of its tactical transport enable Infantry to combine power and rapidity.

■ 50. BASE OF FIRE.—a. The organization of a base of fire comprises—

(1) Establishment of the attacking echelon on a departure position.

(2) Emplacement of the supporting weapons of the unit in firing position to support the advance of the attacking echelon.

(3) Synchronization of the debouchment of the attacking riflemen with the fire of the supporting weapons from the base of fire.

b. The base of fire established by a unit comprises the supporting weapons (automatic weapons and mortars) organically assigned or specially attached thereto. The larger infantry units establish their bases of fire on the more extensive and important terrain features. The smaller units move in shorter bounds against local features included in their own zones of action.

■ 51. MAIN EFFORT.—a. The main effort of a unit aims at securing ground, the possession of which will facilitate the

capture of the objective or the advance of other elements. It is usually made against a weak area in the hostile dispositions. The unit entrusted with the main effort is supported by the bulk of the available fire power. As the attack progresses, the main effort is shifted in accordance with conditions. Shifting of the main effort is usually accomplished by the concentration of supporting fires in a new area. Reserves usually follow the unit making the main effort.

b. Weak points in defense dispositions lie in terrain where the defender cannot use his weapons to advantage, where covered approaches permit an advance close to his position, or where defensive works are exposed to observation by the attacker's artillery. Conditions do not favor an advance where troops are forced to move a long distance under hostile observation and fire before reaching the enemy's position. Areas which are open and can be effectively swept by fire are usually to be avoided. However, open terrain increases the rapidity of the advance when powerful tank, aviation, or artillery support is available.

■ 52. FLANKING ACTION.—Infantry maneuver attains its most decisive successes through flanking action. Rifle units undertake envelopments by preference. The delivery of flanking fire is an outstanding feature of the offensive tactics of small infantry units. Light machine guns are habitually pushed forward behind the units which advance most rapidly, with a view to the delivery of flanking fire across the front of adjacent units. When favored by the terrain, the forward echelonment of an offensive flank creates a flanking field of fire for the light machine guns following the attacking echelon and becomes the most effective countermaneuver against the cross fires of defensive salients. Combination of frontal and flanking fires results in convergent effects that give infantry flat-trajectory fire its most demoralizing power.

■ 53. SIMPLICITY.—The diversity of infantry armament requires assignment of definite functions to the varied elements in order to simplify employment of Infantry in the offensive. Familiarity of a unit with a limited number of relatively definite tactical procedures permits it to meet the

majority of situations advantageously, without excluding modifications appropriate to the particular situation.

■ 54. CONTROL OF BATTALION SUPPORTING WEAPONS.—*a.* In a coordinated attack, battalion supporting weapons are initially controlled from a base of fire, usually on higher ground close in rear of the line of departure, from which the greater part of the front of the unit can be covered.

b. Control of the heavy weapons by the battalion commander insures massed fire support and coordination with the attacking echelon as a whole under the most usual conditions of combat.

c. When the attack or defense is made on a broad front or when the terrain of the attack is heavily wooded or extremely broken, part or all of the battalion weapons may be attached to rifle companies in order to bring about coordination by a commander in a position to observe the action of the attacking echelon.

■ 55. DIRECTION.—Careful provision must be made for the maintenance of direction in approach and in combat. Compass bearings are habitually assigned infantry units. Landmarks are designated to mark boundaries or serve as distant direction points, whenever practicable. During the approach march, the designation of a base unit, on which other elements regulate their movement, facilitates control and minor changes of direction.

■ 56. AVOIDANCE OF ALINEMENT.—No attempt is made to maintain alinement on the battlefield. Linear dispositions are visible and vulnerable and do not favor the development of offensive flanking fire. Situations must be promptly exploited without concern for the maintenance of alinement with adjacent units. Contact with adjacent units is, however, always maintained and provision made for the protection of exposed flanks. Groups exposed to flanking fire move in extended columns. Otherwise disposition of small groups in wedge or cluster generally facilitates readiness for action and adaptation to the terrain.

■ 57. SECURITY (see also FM 100-5).—*a.* Measures for the security of an exposed flank comprise—

- (1) Locating reserves on that flank.

(2) Assigning flank security as a mission of the unit on that flank.

(3) Detailing troops for the specific mission.

b. Antitank units are located to cover approaches favorable for hostile tank counterattack; they maintain continuous reconnaissance for new positions abreast of the advance.

c. Against air attack, the principal antiaircraft weapons of the Infantry for the protection of troops in movement are the automatic rifle and the rifle. A portion of the heavy machine guns is usually given secondary antiaircraft missions. Heavy machine guns are also mounted for antiaircraft missions in rest areas and in reserve locations.

d. When battle is interrupted by nightfall, combat outposts are established by the leading battalions; they push patrols forward to close contact with the enemy (FM 100-5).

e. For measures for the security of a resting or marching command see FM 100-5.

■ 58. RECONNAISSANCE.—Constant reconnaissance is conducted to permit the commander to make appropriate dispositions for security, movement, and combat. Reconnaissance in force is to be regarded as a special rather than an habitual means of action.

■ 59. AMMUNITION SUPPLY.—A rapid and continued advance often depends upon replenishment of the ammunition of supporting weapons. Motor carriers will often be able to replenish the ammunition supply of heavy weapons in the course of battle. Rifle company commanders take advantage of all favorable opportunities to replenish the ammunition of the attacking echelon (stops on masked positions, night) without delaying the advance of the unit on this account.

■ 60. ATTACK SUPPORTED BY TANKS.—Infantry leaders conduct their units rapidly forward when following a tank attack. Every effort is made to reach the objective as close behind the tanks as possible. The method of advance does not differ materially from that of an attack not preceded by tanks except in speed of execution. Greater speed is possible only because successful tank action has temporarily disrupted enemy defensive fire arrangements and the defend-

ing garrison is locked in combat with the tanks. During such period, following rifle units, in whole or in part, may not have to resort to their own fire action, and the attacking echelon, as a whole, should consequently be able to gain ground rapidly toward the objective. Rifle units do not, however, attempt to speed up the advance by assuming linear formations following the tanks. Rifle unit leaders select intermediate objectives as provisional firing positions to support the tanks should fire action become necessary. When accompanying tanks on the objective are pressed by hostile Infantry, the rifle unit leaders open fire in support of the tanks or drive home the assault depending on their distance from the objective.

■ 61. CHARACTERISTICS OF ATTACKS.—*a. Meeting engagements.*—(See FM 100-5.) Infantry units rapidly formulate and execute simple plans for coordinated blows against an immediate objective and thereafter push the advance in accordance with the situation. Quick perception, prompt issue of fragmentary orders, and rapidity of execution by subordinate leaders are required. The control of supporting weapons is frequently decentralized.

b. Against an organized position.—Methodical preparation and massive fire or tank support are necessary to overrun hostile defenses when the enemy has prepared his position and organized his fires. The delays required for preparing and coordinating the attack of such a position may be considerable. They are reduced to the minimum consistent with thoroughness. The essential characteristics of such attacks are comprehensive preparation and development of great fire power in the initial stages.

c. Against discontinuous resistance.—Maneuver by the leading elements, rather than the organization of a powerful attack (par. 49), is relied upon to reduce discontinuous resistance. Infiltration of small groups along covered approaches and the continued advance of elements which encounter no resistance will outflank isolated detachments and usually bring about their withdrawal. Hostile elements continuing to resist are reduced by encirclement or by combined frontal and flanking action. Speed is an essential characteristic of such attacks. Action against discontinuous

resistance is required particularly of the leading elements of advance guards, the leading units of battalions in uncovered approach, and units exploiting a success after breaking the principal hostile resistance.

■ 62. **FRONTAGES.**—a. The frontage to be covered by infantry units in the attack depends upon many considerations, including the strength and mission of units, the terrain, the nature of the hostile resistance, supporting fires, and the training, discipline, and condition of the troops. Unequal distribution of troops will be the rule. Extremely wide frontages, assigned to units through necessity, are covered by leaving gaps between subordinate elements rather than extending the usual interval between individuals. It is frequently advantageous to create gaps between units to facilitate flanking fire of machine guns. This procedure often provides an effective means of extending the front, at the same time facilitating the fire support of the attacking units.

b. The usual limits for war strength units with flanks covered by other troops are indicated as follows:

Unit	Frontage in yards
Squad.....	50-75
Platoon.....	100-200
Company.....	200-500
Battalion.....	500-1,000
Regiment.....	1,000-2,000

■ 63. **ZONES OF ACTION.**—Zones of action are assigned by designation of boundaries or by the indication of the front of deployment and the width of the objective. The battalion is normally the smallest unit for which boundaries are prescribed. Boundaries between units follow limiting lines of terrain corridors when practicable. Initial assignment of zones over a considerable depth is not conducive to the development of infantry maneuver. Except when required to facilitate planning of artillery fires, infantry units usually assign zones only as far as the objective. Subsequent assignments are made after occupation of the objective. The rearward echelons of a unit and supporting weapons may avail themselves of favorable routes of advance and firing positions in the zones of adjacent units which have gained

an advanced line. Overcrowding of masked areas must, however, be avoided. Unless movement into adjacent zones is fully coordinated by the commander concerned, confusion, mixing of units, and unnecessary casualties may result.

■ 64. DISTRIBUTION IN DEPTH.—When a long advance is required of the larger infantry units or when they are making the main effort, they are usually disposed in considerable depth and are given relatively narrow frontages. Those which are required to make only a slight advance are deployed in less depth and assigned relatively greater frontages. Except in isolated combats, attacking units are assigned frontages by higher authority; their commanders regulate the depth of the deployment accordingly.

■ 65. USE OF RESERVES.—*a.* Infantry commanders generally find it necessary to use all of their troops at some stage of combat. They engage their reserves as the situation warrants. Reserves are primarily maneuvering bodies whose role is the outflanking of resistances developed by the leading echelon, the continuance of the action of assaulting echelons when these become exhausted, and the protection of the leading echelon against counterattack. They are engaged fundamentally to further success at points where the resistance of the enemy is weakening rather than to redeem failure where he is offering stubborn resistance.

b. The approach march is said to be covered when it is advantage of cover and concealment, furnish flank security, and hold themselves available for prompt entry into combat. In general the large infantry reserves are moved by bounds under orders issued by the commander who designated the reserve. Company supports may be ordered to follow the leading platoons from cover to cover at a distance within specified limits.

c. Commanders of reserve units keep in touch with the situation on their front and flanks, reconnoiter routes to their probable places of employment, and insure their readiness for action in any direction.

■ 66. POSITION OF COMMANDERS.—*a.* Before entering an action, each infantry commander should be as far to the front as practicable in order that he may personally observe the

situation, order the deployment of the unit, and insure that it begins the action strictly in accordance with his wishes.

b. During the action the higher infantry commanders leave the detailed conduct of units in the attacking echelon to the local commanders. They intervene when necessary to insure teamwork between subordinate elements or prevent the commission of serious errors. They place themselves where they can see or keep in touch with their leading echelons, without losing contact with their reserves and supporting weapons, which are the principal means by which they can influence the action.

SECTION II

APPROACH MARCH

■ 67. GENERAL.—*a.* The approach march is conducted with a view to bringing Infantry close to the enemy in readiness for action and with minimum losses. It commences when troops enter a zone exposed to the fire of hostile light and medium artillery (ordinarily not in excess of 10 miles from the hostile batteries), and the troops moving by daylight are forced to abandon the route of march. (For night movements see pars. 135-149, incl.) It terminates when they reach the zone of effective small-arms fire. Intensity of aerial attacks may also force the troops to leave the roads and take up dispersed dispositions.

b. The approach march is said to be covered when it is executed behind forces sufficiently strong to insure effective protection against ground attack. It is said to be uncovered when the advancing unit is unprotected by other troops or when, by reason of their extension or the uncertainties incident to a shifting situation, the elements in front cannot be relied upon to afford adequate protection. It is the function of commanders to estimate the extent to which advanced forces make it possible to curtail local security measures and thus expedite the approach movement.

■ 68. COVERED APPROACH MARCH.—*a. Assembly areas.*—Infantry units usually occupy or pass through divisional assembly areas (see FM 100-5), where they make preliminary

preparations for attack. Where the divisional assembly area is at a greater distance from the objective than the range of infantry heavy weapons, regiments and battalions usually direct their further advance on a terrain feature which they occupy as a final assembly area preparatory to attack.

b. Approach by night.—The covered approach march is frequently made by night in order to avoid hostile observation and diminish the effectiveness of hostile action. Movement is usually along roads or trails which have been reconnoitered by day. The size of columns and distances between elements and individuals vary with visibility conditions, the activity of the hostile artillery, and the danger of air attack. Motors, grouped by regiment or battalion according to the situation, usually follow the Infantry of the column, starting at a later hour. Exceptionally they may move by a separate route.

c. Approach by day.—(1) The advance is made by long bounds along reconnoitered lines of approach to successive objectives. Distribution of the troops in small columns permits utilization of the terrain for concealment and for protection against armored attack and minimizes the effect of hostile artillery fire and attacks by hostile aviation. Excessive dispersion is avoided; platoons frequently move in single file or column of twos. In passing over exposed terrain, the distance between elements should be sufficient to insure that no two can be hit by the burst of a single projectile. Paths and trails are utilized except when unduly exposed. Cross-country movement along the edges of woods and cultivated fields and through ravines impedes reconnaissance by hostile aviation. Movement along sides of hills and avoidance of valleys and depressions may be necessary to minimize the effects of gas concentrations. Shelled regions, areas contaminated by gas, and points such as villages, defiles, and small woods, likely to have been registered by hostile artillery, are avoided or occupied for minimum periods. It is frequently advisable to cross especially dangerous terrain lines or areas by infiltration, re-forming on a designated line. Direction is maintained by means of compass bearings, assignment of distant direction points, and within battalions and smaller units by the indication of a base unit upon which other units regulate their movement.

(2) Contact is maintained with covering elements. Leaders of the larger infantry units usually precede their units to prepare their entry into action.

(3) Company vehicles not required for antitank and anti-aircraft defense and battalion trains are usually grouped by battalion or by regiment and follow their units by bounds; wide separation of troops and motors is avoided.

(4) Security against incursions of hostile armored elements is sought by the selection of march objectives constituted by stream lines or other terrain features favoring antitank defense. A motorized detachment including a portion of the regimental antitank guns, moving ahead to these lines, occupies positions for defense against armored elements which may have penetrated the covering forces; other antitank cannon move or take successive positions so as to protect the flanks. Battalion antitank weapons, transported on carriers, move near the leading elements of their battalions, prepared for prompt entry into action. So far as consistent with the requirements of antitank defense, bounds of movement are directed to areas offering concealment from hostile air observation and maximum protection from artillery fire.

(5) Antiaircraft lookouts move ahead of and on the flanks of columns. Riflemen and automatic riflemen are constantly prepared to fire on aerial targets. Heavy machine guns cover their units by echeloned advances, occupying successive positions for antiaircraft defense.

d. Halts.—Regular halts are omitted; such halts as are necessary to rest the troops are made on objectives.

■ 69. UNCOVERED APPROACH MARCH.—*a. General.*—(1) The uncovered approach march is made by day. (For night approach see par. 138.) Movement of the main forces is protected by advance guards which progress in constant readiness for combat. Flank guards are detailed when required. Company vehicles and ammunition and medical vehicles of the battalion train accompany their units.

(2) Security and protective measures prescribed in the following paragraphs are in addition to or a modification of those prescribed for the covered approach.

b. Movement of leading elements.—(1) The advance guard and its component units move by bounds to successive objec-

tives. Each bound of movement of the advance guard is directed upon a terrain line of importance to the security of the main body or to its eventual combat action. According to orders received on reaching an objective, the covering forces prepare to continue their advance, deploy defensively on a broad front to cover elements in rear, or launch an attack to gain a terrain feature. Higher authority may designate the more important terrain features as control lines to coordinate the movement of several adjacent units. Infantry commanders designate successive objectives for the purpose of control. Each bound of movement is preceded by reconnaissance of the objective. Distance between objectives depends on the terrain. Preferably, battalion bounds will be from 1,000 to 1,200 yards; those of companies 500 to 600 yards.

(2) The commander designating an objective indicates the conditions under which the advance will be resumed therefrom. Provision for reconnaissance and transmission of information and orders must be such as to reduce the duration of halts to a minimum.

(3) Leading rifle units progress in extended order, reconnoitering so as to prevent elements other than patrols being taken under surprise fire by infantry weapons. So far as practicable, they utilize terrain difficult for tank movement and send only weak elements into open areas which constitute favorable routes of approach for tanks.

c. Advance of main body.—Units of the main body develop for approach march under the conditions described in paragraph 67. Where the protection of the advance guard does not appear adequate to guarantee the security of the main body or when it has been released from its security mission, leading battalions or regiments cover their advance by charging their leading echelon (company or battalion) with securing their advance. The security echelon advances by bounds on successive objectives as prescribed for units of the advance guard. The security echelon covers subsequent echelons on battalion objectives and protects the occupation of assembly areas.

d. Antitank defense.—(1) Adaptability of the terrain for antitank defense (wooded areas, solidly constructed buildings,

and obstacles such as water courses and steep slopes) influences the selection of objectives. Constant reconnaissance is conducted to insure early warning of an advance of hostile tanks. Information is transmitted by prearranged signals. Leading elements repeat warnings to units in rear.

(2) Antitank weapons are so distributed as to afford protection throughout the depth of the dispositions. Throughout the approach march, regimental antitank weapons move by echelon and by bounds under the direction of the regimental commander. Initially they move close behind the security echelon. When required, one echelon takes position covering the most dangerous directions of probable tank attack until the rear of the regiment has passed. The remaining echelon continues the advance to a similar position and mission. Battalion antitank weapons on carriers move well forward in the dispositions of their battalion. During halts on objectives, they take positions for antitank defense.

(3) When warning of an impending tank attack is given in sufficient time, rifle elements, where practicable, gain the nearest antitank terrain (woods, terrain interdicted by steep slopes or marsh, etc.); otherwise, the men take concealment in the nearest local cover. Congestion is avoided. Lightly armored vehicles vulnerable to small-arms armor-piercing ammunition are taken under heavy small-arms fire.

e. Halts.—(1) Pauses on objectives necessitated by tactical considerations usually afford sufficient opportunity for rest; when the approach march is of long duration or makes unusual demands on the troops, higher commanders provide for long halts as indicated by the situation. Such halts are usually made on important objectives.

(2) When a long halt is made, the advance guard or the security echelon of infantry units dispose themselves as a march outpost. The action of several march outposts may be coordinated by higher authority if the halt is of considerable duration.

SECTION III

PLANS OF ATTACK

■ 70. PREPARATION FOR ATTACK.—*a. Occupation of assembly areas.*—Infantry units complete preparations for attack in

their final assembly areas. This is usually the last cover or mask which they can reach without battle. Its distance from the enemy varies with the terrain. It should afford cover from air and ground observation and small-arms fire. Local attacks are sometimes delivered or short advances made by night in order to secure a more favorable departure position prior to a general attack.

b. Battle reconnaissance.—Battle reconnaissance carried out by reconnaissance detachments and patrols is usually completed as the assembly area is occupied. It is directed primarily to ascertain the character of the terrain and the general contour of hostile resistance. Unit observers promptly organize observation of the zone of the prospective attack. Close scrutiny of all parts of the hostile zone frequently detects careless movement of individuals and groups and permits deductions as to the areas in which hostile troops and weapons are located. Information thus obtained, together with that furnished by higher commanders and other sources, affords a basis for planning supporting fires. When the enemy occupies a prepared position, more detailed information is sought concerning the nature and location of hostile works and weapons and the strength of occupation in various sectors.

■ 71. ORDERS.—*a.* Attack orders are based upon data which include instructions from higher authority, information of the enemy, the situation and contemplated action of adjacent units, available fire support, and the facilities for advance offered by the terrain.

b. The amount of detail included in orders will largely depend upon the time available for preparation of the attack and the degree of training of the troops. Anticipation of a course of events by detailed directions as to action to be taken in certain contingencies is avoided. Complicated instructions and data not needed by missions of subordinate commanders are excluded.

c. A commander prescribes a detailed tactical plan only so far as he can reasonably estimate the hostile resistance to be expected. The smaller the unit, the less in advance is it necessary or practicable to plan a definite maneuver. For units smaller than a battalion, it is usually sufficient to pre-

scribe initially only a simple combination of fire and movement for the capture of ground in sight of the troops and to assign the direction of attack and the objectives prescribed by higher authority or dictated by the situation and the mission.

■ 72. MISSIONS FOR SUBORDINATE UNITS.—Units of the attacking echelon are given their battle tasks in terms of initial positions, directions of attack or zones of action, and objectives. Reserve units are assigned an initial location and contemplated direction of advance. Infantry supporting weapons are assigned their specific combat missions, including first firing positions and initial targets, target areas, or sectors of fire. Plans provide for their prompt displacement.

■ 73. FIRE PLANS.—a. Supporting fires of whatsoever kind must be coordinated. When practicable, fires to dominate located resistances and neutralize areas from which hostile fire would be most dangerous are prearranged. Provision is made for engaging targets revealed during the course of the attack. Each unit seeks necessary augmentation of its own fire support by requesting that higher headquarters provide support from means under its control. (See par. 163.)

b. In the absence of tanks, the fire of divisional artillery usually constitutes the basis of the fire plan of infantry regiments and battalions. The artillery neutralizes target areas in successive concentrations; it shells the nearer targets until progress of the attack makes it necessary to transfer fire to a more distant zone. Fires are arranged in consultation with the commander of the supporting artillery.

c. The infantry mortars supplement the action of the artillery by fire on resistances too close to the attacking echelon to be dealt with by the artillery, on accurately located point targets disclosed during action, and on targets of opportunity on which artillery fire cannot be promptly obtained. The heavy machine guns reinforce the action of artillery by long-range fires. Rifle companies employ their special weapons to complete the supporting fires at the disposal of regiments and battalions. Higher units may direct subordinate elements to support adjacent elements.

d. The normal missions of the heavy machine guns are long-range fire, antiaircraft fires, and protection of the flanks of attacking units against hostile counterattack. Missions close to the attacking echelon are limited to exceptionally favorable opportunities of terrain and situation.

e. The 81-mm mortars bring down immediate fire on isolated points of resistance which the artillery has not suppressed. The leaders exercising fire control must know at all times by direct observation the location of their target and of the front-line Infantry. The mortars are emplaced as far forward as defilade and ammunition supply permit. Requirements as to observation take precedence over all other considerations. The distance of emplacements from the attacking echelon does not exceed 800 yards and is usually much less. Mortar fire is controlled by observation from near the piece; exceptionally by wire communication to an observation post.

f. The 60-mm mortars are used in a similar manner by the rifle-company commander. They are emplaced as far forward as consistent with fire direction by the company commander and with the ammunition supply. They are kept within 400 yards of the front line. Their requirements for defilade are very slight.

g. Light machine guns are employed to fire through gaps in depth across the front of their own company or elements thereof or to flank the front of adjacent companies; or they are held ready to make rapid advance to positions for flanking fire. They are employed for frontal fires in grave emergencies only.

h. Antitank weapons are initially located to prevent a sudden onrush of hostile tanks. Usually antitank guns are held under cover near positions to be occupied promptly on need. Firing positions cover the probable routes of advance of hostile tanks. In open terrain, a portion of the guns is located on the flanks of each battalion, with the lighter weapons distributed along the departure position.

■ **74. INFANTRY SUPPORT OF TANK ATTACKS.**—The primary mission of the machine guns in support of tank attacks is the neutralization of the hostile antitank guns. They open fire on antitank weapons that disclose themselves by flash

or muzzle blast, without regard to safety limits. Riflemen and machine gunners give close-in protection to tanks when the latter are halted or stopped on the objective.

■ 75. COORDINATION OF MOVEMENT OF TANKS AND INFANTRY.—
a. Objectives.—The tanks accompanying the Infantry are usually directed on the same initial terrain objective as the infantry battalions with which they are operating.

b. Fire and movement.—(1) The coordination of the fire support and movement of the Infantry with the movement of the several tank echelons is influenced by several factors:

(a) Distance of the line of departure from the objective.

(b) Need of the tanks for the fire support of the foot troops during their movement on the objective.

(c) Need of the foot troops for tank neutralization of the hostile resistances prior to their debouchments.

(d) Depth of the tank dispositions.

(e) Influence of the terrain of the advance on the speed of tank movement.

(f) Probability that the hostile Infantry will seek to conceal their location, allow the tanks to pass through them, and take the following Infantry under fire.

(g) Need to reduce the tank-cruising period on the objective to a minimum.

(2) The following indications, though not absolute, serve as general guiding lines for tank-infantry coordination, subject to variation with the nature of the terrain and the situation:

(a) Where the line of departure lies well within midrange of the estimated location of the hostile position, the Infantry debouches when the rear tank element has reached the position. It supports the tanks with fire of its machine guns throughout the tank advance.

(b) When the line of departure lies at long range from the estimated location of the hostile position and only accompanying tanks are present, the Infantry supports the tanks in the initial stage of their advance; it debouches as soon as the last echelon of tanks has passed beyond midrange and directs its advance upon a provisional intermediate position, where if necessary it renews its fire support of the tanks and takes under fire enemy elements passed over or undominated

by them. In this case, fire support of the tanks by the Infantry is interrupted during a part of the advance, and the tanks must rely on their own fire power to protect the final stages of their movement.

(c) Where the tank dispositions on debouchment of the last tank elements completely or nearly completely cover the entire zone between the line of departure and the objective, the foot troops support the advance of the foremost tank echelon and closely follow the last tank elements. The action of the foremost tank echelon is relied upon to neutralize the hostile resistances and protect the initial advance of the foot troops. Where the line of departure lies at long range from the objective, the foot troops move on an intermediate provisional objective where, if necessary, they renew their support and fire action as already described. Launching the tank advance while foot troops are attacking an objective is exceptional; such action is practicable only when the tanks have available a route of advance which does not pass over the lines of the rifle units.

c. Passage through foot troops on departure position.—Normally one or two zones through the line of departure of an infantry battalion are reserved for tanks. When practicable, the tanks pass through the foot troops on a relatively narrow front, which they thereafter extend in accordance with the situation. If the situation requires the tanks to debouch on a wide front, the Infantry (except for supporting weapons grouped in one or two clearly defined areas which tanks must avoid) may be held in a sheltered assembly position and move forward to the line of departure only after the passage of the tanks. The rear of areas occupied by foot troops will be guarded by sentries with conspicuous means of identification. This procedure has especial application in a daybreak attack. Similar measures will be improvised for resumption of the advance from an objective.

d. Passage through foot troops between objectives.—(1) If the plan contemplates initiation of the tank attack while the Infantry is attacking an objective, a tank zone of advance must be defined prior to the attack and foot troops fully informed. Where practicable, foot troop commanders keep their units clear of the tank zone, or warn subordinate rifle

unit leaders of the time of tank movement through their area.

(2) If the situation compels unanticipated engagement of tanks against resistance which has held up the Infantry, reconnaissance will usually be necessary to locate a tank route clear of Infantry.

SECTION IV

EXECUTION OF ATTACK

■ 76. ADVANCE OF RIFLE UNITS.—a. When not in close contact with the enemy prior to the attack, rifle units of the attacking echelon ordinarily advance a long distance before they are justified in opening fire. In the early stages of the attack, they are mainly under fire from hostile artillery and long-range infantry weapons. The action of artillery and infantry supporting weapons or tanks is initially relied upon to gain fire superiority. The best protection of the advancing troops against loss consists in combining a rapid advance with the utilization of cover from view. At ranges beyond 400 yards, rifle company weapons open fire only when other available fire support is inadequate.

b. The participation of the riflemen in the fire fight, if not required earlier, becomes indispensable when they come under the fire of hostile rifle units and especially when the supporting weapons lift their fires from the foremost hostile elements. Rifle units seek to combine their fires with those of the supporting weapons, which neutralize the fires of rearward hostile elements firing on the attacking echelon. The combined fire effect creates the conditions which make possible the movement of the attacking echelon. The rifle units exploit these conditions by alternate fire and movement. While some of the riflemen open fire to hold down the fire of the enemy resistances, others advance from one cover or firing position to another. Enough rifles must be continued in action to keep down the enemy's fire; units most favored by terrain or fire support push forward while those most exposed support the advancing elements by fire. Slackening of hostile fire gives the signal for the advance, which in each small unit is executed by fractions of varying size or by in-

dividual rushes as required by terrain conditions and hostile fire effect. Every lull in hostile fire is utilized to push groups to the front and occupy points from which covering fire, particularly the flanking fire of the light machine guns, will facilitate the further progress of the attacking units.

■ 77. ACTION OF SUPPORTING WEAPONS.—The infantry supporting weapons, displacing forward when necessary, cover the advance of the rifle platoons to close range, protect their flanks, and assist in the reduction of hostile resistance.

a. The light machine guns furnish the rifle platoons close support, usually by flanking fire through gaps in depth between adjacent units.

b. The heavy machine guns execute long-range overhead fires and antiaircraft missions and protect the flanks of advancing rifle units against counterattack. Advancing by echelon, they extend in depth the fire power of the attacking riflemen. They form the most important protective element in the successive bases of fire.

c. The advance of the mortars is so regulated as to enable them to respond instantly to the needs of the rifle platoons and place prompt and effective fire upon targets of opportunity. Their fire allows riflemen to maneuver more freely, advance close to the enemy, and prepare for assault. Their precision is often sufficient to put hostile automatic weapons out of action and neutralize isolated resistances. They thus constitute the outstanding infantry supporting weapons in the attack.

d. The antitank weapons follow the advance by bounds, some always ready to fire. The battalion weapons displace forward early, following the attacking echelon. Antitank 37-mm guns move forward after the lighter weapons have reached their new position and when sufficient distance from the attacking echelon has been gained to permit a rapid displacement by motor carriers to an advanced cover position. Both the regimental and battalion weapons take as their special targets all hostile vehicles within effective range when not imperatively required for antitank missions.

■ 78. DEVELOPMENT OF COMBAT.—a. The attack does not generally encounter a uniformly held continuous line of defense.

It has to overcome a defense disposed in depth, consisting of a series of strongly held areas covering the main routes of advance, with relatively lightly held intervals covered by the flanking fire of automatic weapons. By a stubborn defense of these areas, the defense seeks to limit the penetrating action of the attack and overwhelm by counterattack the assaulting elements which penetrate its front.

b. The inequality in the resistance encountered and in facilities for progression offered by the terrain and by supporting fires results in some attacking units being held up while others are able to advance. The situation thus created is exploited by the flanking fire of the light machine guns. A unit not stopped by the enemy's fire pushes on, even though adjacent units have been stopped, until it has reached its assigned final objective.

c. The advance of some units outflanks resistances holding up other elements and thus facilitates enveloping action. Units held up direct their reserves into the gap to envelop the enemy or gain his rear. These islands of resistance are thus reduced by combined frontal and flanking action.

d. Exploitation of local successes usually comprises simultaneous attempts to widen and deepen the gaps created. The formation of narrow, deep salients is dangerous and does not promise decisive results, while if the advance is halted while the breach is widened the enemy may be able to re-form on positions in rear. In general, a unit which is held up along its whole front sends in its reserves for flanking action against the resistance, utilizing the zone of adjacent units for its maneuver. Reserves of the next higher unit are fundamentally to reinforce the front on which progression is continued. Exceptionally they may be used in whole or in part to reinforce the rearward unit where the latter's reserves are inadequate and its objective is of critical importance for the general advance.

e. As one terrain feature is occupied, the advance to the next line is organized. Fire bases are rapidly organized. While the enemy's resistance remains unbroken, no movement is made without covering fire. Ammunition supply must be so organized as to insure continuous fire support.

■ 79. MEANS OF RESUMING ADVANCE.—In case the advance is held up, infantry commanders take appropriate action to bring about its resumption. According to circumstances, they improve the teamwork between rifle units and supporting weapons, obtain additional fire support, or engage reserves.

■ 80. MASS TANK ATTACKS.—*a. Counterantitank action.*—(1) When tanks lead the advance against continuous resistance, an effort is made at the outset of the attack; first, to put the hostile antitank guns out of action, and then to neutralize the hostile automatic weapons. This action is repeated on each of the more important objectives.

(2) The success of the entire attack depends in large part on the success of the initial fight against antitank weapons. These weapons are difficult to locate until they open fire; however, the general region which they are most likely to occupy can often be determined. The artillery places its fires on these areas during the artillery preparation, if one has been ordered, and while the first tank echelon is advancing.

(3) The infantry supporting weapons remain in surveillance of well-defined areas with the mission of firing on hostile antitank weapons as soon as they are revealed by flashes or muzzle blast. Rapid action is required. Light and heavy machine guns employ direct fire to support the advance of the tanks into and through the hostile defenses.

b. Infantry advance.—(1) A large proportion of the hostile automatic weapons will be neutralized or destroyed as the Infantry moves forward. This advance is as rapid as possible in order to exploit promptly the action of the tanks. The method of advance is generally similar to that when tanks are not present. Rapid dashes are made from cover to cover with minimum periods of exposure. In no case does a tank attack call for linear advance of foot troops.

(2) Light and heavy machine guns take up their normal missions in support of the rifle platoons as soon as the latter debouch from their departure position. The attacking echelon opens fire in defense of tanks pressed by hostile Infantry. Mortars lift their fire to targets beyond the hostile position of resistance.

(3) Usually a portion of the heavy weapons moves forward immediately behind the leading rifle companies with a view to the rapid establishment of a base of fire on the next objective.

c. Protection of tanks.—The Infantry must always be on the alert to protect tanks. It uses all of its light flat-trajectory weapons to disengage a tank which is closely assailed by hostile elements.

SECTION V

ASSAULTS; COMBAT THROUGH DEPTH OF POSITION

■ 81. ASSAULTS.—*a.* When troops have approached closely to the hostile position on an extended front, a general assault under coordination of the higher command may be delivered. Infantry units, advancing closely behind artillery fires or tanks, break into the hostile position. Thereafter a successful general assault breaks up into a series of local combats through the depth of the hostile position.

b. Inequality of resistance, terrain, support, and other factors produce irregularity in the advance of the attacking forces along the front of the attack; hence immediate advantage of any weakening of the enemy produced by one local assault must be exploited promptly by neighboring units. The closest available cover to the hostile position should be reached by a unit before its assault is launched; units supported by flanking fires from troops which have already broken into the position, or advancing behind tanks, may assault from greater distances. The assault of rifle units is usually initiated by units whose close approach has been favored by the terrain or those which have encountered weak enemy resistance. A heavy burst of fire is delivered by all available weapons, following which the troops rush the hostile position. The assault of a unit is supported by every element in position to render assistance.

c. When the assault is prepared by the fire of artillery or of infantry supporting weapons, the fire ceases or is lifted to other targets at a prearranged hour or on a preconcerted signal. Supporting hostile elements capable of firing effectively on the assaulting troops are kept under fire during

the assault. Flanking fires of friendly adjacent units are shifted on observation of the advance of the supported troops.

d. As the attacking echelon closes to assaulting distance, rear echelons move forward to support the assault and insure its continuance.

e. Echelons of supporting weapons move forward as soon as they can be released from their prior missions.

■ 82. COMBAT THROUGH DEPTH OF POSITION.—After the first assault, fire is opened on any retreating enemy in sight. Automatic weapons of units which have secured a lodgment on the hostile position deliver flanking fires against adjacent resistances in support of the assault of other units. Reserves are sent in to relieve units of the assaulting echelon too badly disorganized to continue the attack. Units held up utilize terrain made available by the penetration of the hostile position by adjacent units, for delivery of flanking fire of light machine guns and the enveloping action of reserves. The advantage gained is exploited without delay; complete reorganization of smaller units is normally postponed until arrival on battalion objectives. A base of fire is organized as soon as terrain suitable for that purpose has been conquered.

■ 83. INTERRUPTION BY DARKNESS.—If darkness falls before a decision has been gained, combat outposts are established (par. 96), and troops are regrouped to continue the attack, usually at daybreak the following morning; night attacks are sometimes executed to gain important local terrain features. Vigorous reconnaissance is pushed during the night to detect any change in the hostile dispositions, intentions, or situation. Ammunition and other combat supplies are replenished in all echelons.

SECTION VI

OCCUPATION OF CAPTURED POSITION; PURSUIT

■ 84. OCCUPATION OF POSITION.—When further advance is not practicable, arrangements are made to hold the captured terrain. The troops are reorganized and disposed for defensive

action. The position is organized and defensive fires prepared (par. 101).

■ 85. PURSUIT.—The general instructions for pursuit are contained in FM 100-5.

a. The utmost exertions are required of the troops. Their fatigue must not be allowed to slacken the pursuit. When the enemy retreats beyond range, patrols and detachments are sent forward to maintain contact. As soon as possible pursuit is inaugurated on a broad front. Distant objectives are assigned to regiments and battalions. Groups comprising all types of infantry weapons are constituted by the attachment of light mortars and machine guns to rifle platoons and heavy weapons to rifle companies.

b. The most advanced detachments push forward without regard to the progress of units on their flanks. They leave reduction of resistance to rearward elements; the pursuit must not be held up by small rear guards. The advance of the leading detachments quickly discloses the zones in which the enemy still attempts to resist. Units whose advance is blocked attack vigorously to pin down the enemy, using their reserves to attack hostile resistance in flank and rear. Units in rear echelons pass units held up or engaged, so that comparatively fresh troops successively join the action.

c. Artillery is usually attached to infantry regiments in the pursuit. It is promptly engaged when hostile resistance must be broken or the enemy prevented from re-forming on a position. It fires especially on enemy forces at points of compulsory passage (road centers, defiles, stream crossings).

■ 86. NIGHT PURSUIT.—a. When it becomes evident that the enemy will not maintain his position, troops in contact launch limited objective night attacks to disorganize his withdrawal. They seek especially to gain possession of road centers and commanding terrain within the enemy lines.

b. When not in contact with the enemy, pursuing troops push forward following the roads. Attached artillery follows to occupy advantageous positions at daylight and to extend the depth of fires. Reports concerning objectives reached must be rendered promptly to prevent the pursuing Infantry from being fired on by its own artillery.

SECTION VII

ATTACK OF FORTIFIED POSITION

■ 87. CHARACTERISTICS.—Powerful means and careful preparation are required for the attack of a fortified position. Protection by troops in contact with the enemy enables preparation to be made a relatively long time in advance. Information of the hostile defenses is essential. Stringent measures are taken to insure secrecy. Initially the attack is methodical, according to careful plan; in the later stages success depends upon reducing isolated resistances by rapid maneuver. Such action requires high initiative and quick cooperation. The attack must reach vital areas before the arrival of motorized hostile reserves.

■ 88. APPROACH MARCH.—Attacking troops usually move to their attack positions by night; the movement is covered by other troops in contact with the enemy. The advancing troops are conducted by guides furnished by troops in position or by their own guides adequately instructed. Every precaution must be taken to avoid detection by the enemy. Careless exposure will promptly bring down his organized fires and disclose the operation.

■ 89. PLAN OF ATTACK.—*a.* Higher authority prescribes the initial phase of an attack against a fortified position in greater detail than for attacks against hastily organized positions.

b. When a preparation by artillery or aviation is to precede the attack, infantry commanders must know the artillery and aviation plans for their zones, particularly plans for destroying wire, antitank obstacles, and mines. They ask for the creation of gaps required by their plan of attack, or when necessary adapt their maneuver to the plan for removing obstacles.

c. Infantry commanders plan, so far as possible, the phases of attack following the initial assault, when the closely coordinated massive support of artillery is lacking. They acquire all possible information from map study and other sources concerning the terrain in their zone of action. Success and the avoidance of unnecessary losses may depend upon knowledge of small details.

■ 90. EXECUTION OF ATTACK.—The attack usually starts with preparation by artillery and infantry supporting weapons. The troops, at times preceded by tanks, execute a quick drive into the hostile position. After the initial assault, the fight within the hostile position becomes a series of local combats. The attacking echelons push on to their objectives without detailed search of communication trenches or the terrain. They are followed by special detachments, designated in advance and provided with special equipment, which mop up any resistance passed over in shelters, trenches, or emplacements. These detachments are usually assigned specific areas; at times stubborn fighting is necessary in the execution of their mission. Reserves avoid becoming involved in these combats.

CHAPTER 3

DEFENSIVE COMBAT

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SECTION I

DEFENSIVE ACTION

■ 91. DEFENSE AND DELAYING ACTION.—Depending on the object to be accomplished, defensive action may take the form of a sustained defense or of delaying action. The sustained defense seeks to stop an enemy attack in place. Delaying action seeks to hold off a decisive engagement, pending the development of more favorable conditions for battle, either in respect to time or to place.

SECTION II

DEFENSE

■ 92. MISSION OF INFANTRY.—The mission of the Infantry in sustained defense is, with the support of the other arms, to stop the enemy by fire in front of the battle position, to repel his assault by close combat if he reaches it, and to eject him by counterattack in case he enters it.

■ 93. BASIC CONCEPTION OF INFANTRY DEFENSE.—*a.* This manual is concerned only with those factors which particularly affect infantry defensive action. The larger operative considerations which determine the general location of the zone of resistance are developed in FM 100-5.

A defensive attitude may be imposed by the enemy or it may be deliberately adopted, either temporarily with a view

to the ultimate assumption of the offensive under more favorable conditions, or locally to economize forces in one locality with a view to massing superior forces in another. In either case, relative weakness on the part of the defensive forces is to be presumed. The defense must endeavor to compensate for this weakness by intensive resort to screening and concealment of its dispositions, to methodical preparation of fires, and to thorough knowledge, utilization, and organization of the terrain. Protection must not be sought at the expense of disclosing dispositions. Unmasked defensive dispositions will be promptly neutralized, if not destroyed, by superior hostile means of action.

b. The defense seeks to act by surprise. It frequently varies its procedure. Every effort is made to keep the enemy in doubt as to the location of the main line of resistance and the principal elements of the defense. Changes in defensive arrangements, camouflage, dummy works, skillful screening by security detachments, and the activity of contact detachments in advance of the battle position mislead the enemy, induce him to adopt faulty dispositions, and expose him to surprise fire action.

c. While the primary means of action of the defense is fire, the defender must be mobile and aggressive. The great stopping power of the fire of infantry weapons, which is increased by organization of the ground, permits wide fronts to be guarded by relatively weak holding elements. The economy of force thus effected enables the defending Infantry to hold out reserves as maneuver units. It shifts these forces so as to meet the most determined blows of the attacker with maximum strength and counterattacks at points of decisive importance.

■ 94. SELECTION OF POSITION.—a. Infantry commanders exercise only a limited latitude in the choice of positions. The general location of the main line of resistance is indicated by higher authority. Its detailed location is determined on the ground by infantry commanders. The dominant factors influencing the detailed location of the main line of resistance are observation (both the defender's and the enemy's) and the location of natural obstacles.

b. The defense seeks to see while not being seen. The main line of resistance should cover terrain features essential to observation of the foreground of the position. As far as practicable, it should deny to the enemy facilities for observation over the approaches to the position from the rear. Considerations of concealment sometimes cause the defender to occupy apparently less favorable terrain in preference to ground offering greater protection or more extensive fields of fire. This sometimes leads to the occupation of reverse slope positions where an adequate field of fire can be secured. In such case, outposts, including sufficient machine guns for the required long-range fire missions, hold the crest in front.

c. Full advantage must be taken of natural obstacles which give protection against tanks. Good tank obstacles are unfordable water, marshes, closely strewn boulders, thick woods with trees of large diameter, steep slopes, steep broken ground, and tree stumps of sufficient size to belly a tank. In regions exposed to tank attack, an adequate field of fire for antitank guns is essential. This may carry with it exposure to hostile view and artillery fire. In such case the holding by a strong outpost of a terrain feature which will screen the battle position from hostile ground observation, the multiplication of dummy emplacements and obstacles, the utilization of minor accidents of the ground, and other features offering concealment render difficult the recognition of defensive dispositions.

d. The exact location of a defensive position is greatly influenced by the suitability of the terrain for the development of infantry fire, particularly the flanking fire of machine guns. For this purpose, the main line of resistance is traced to include salients and re-entrants. Facility of communication within the position and the approaches from the rear increases the effectiveness of the defense. Absence of obstacles to the movement of reserves within the position is an important consideration.

■ 95. DISTRIBUTION OF TROOPS.—*a.* As a rule the position is not defended by an occupation in uniform density along the entire front but rather by holding in strength the tactical localities which constitute the key points and by providing

for the defense of the intervals between such points by fire and counterattack. The key points of a defensive system in the main are points that control the communications of the defense and terrain features affording extensive observation into the defensive position or over the foreground. Terrain features affording cover or concealment or good fields of fire to the front or flanks constitute minor tactical localities.

b. Troops of the defense are disposed in depth varying with the tactical situation. The objects sought by distribution in depth are to—

(1) Provide for security and gain time for manning the defenses of the battle position.

(2) Screen the battle position and keep the enemy in doubt as to its location.

(3) Facilitate resistance to the flanks and rear as well as to the front.

(4) Avoid offering the enemy a vulnerable concentrated target.

(5) Provide suitable positions in readiness for reserves.

c. For the accomplishment of these objects, the general distribution of infantry units comprises—

A security echelon.

A combat echelon.

Reserves.

■ 96. SECURITY.—Security detachments protect the battle position from surprise ground attack and screen it from hostile observation and investigation. Fully organized outposts are established by regiments and larger units (see FM 100-5) and are ordinarily located beyond the range of infantry weapons. Combat outposts are established by rifle companies and battalions when regimental or divisional outposts are not established. Combat outposts comprise outguards of varying size depending on their location and mission. When the security position lies within close range of the battle position, combat outposts are established by rifle companies of the combat echelon and usually consist of one or more squads posted as outguards under a commander designated by the company commander. Beyond the close-range zone, combat

outposts as a rule comprise one or more platoons usually selected from the battalion reserve, under a commander designated by the battalion commander. Fully organized outposts are usually essential when the battle position is located on a reverse slope or when attack by mechanized forces must be reckoned with and a strong natural obstacle does not lie in the immediate front.

■ 97. **BATTLE POSITION.**—*a.* The main line of resistance coordinates the fire action of all elements of the defense. It forms the forward limit of the battle position, beyond which no infantry element may be placed during the defense of the position. It forms the inner boundary of a zone in which the entire defensive fire power is concentrated for decisive action. It defines and coordinates the missions of the units of the combat echelon and their reserves; they must hold their position against attack, and use their reserves to retake by counterattack any portion of the position which may have been temporarily lost.

(1) All defensive preparations are related to the defense of the main line of resistance. The basis of the defense is constituted by the fortified supporting points of the main position of resistance forming closed works organized for all-around defense. A defensive system based on holding successive lines results in dispersion of force and is applicable only to the purposes of delaying action.

(2) Infantry units in the battle position are generally deployed in two echelons: a holding garrison designed for the immediate defense of a portion of the position; and a reserve. The entire strength of smaller units may be devoted to holding missions. A substantial portion of the larger infantry units is usually held in mobile reserve.

(3) The holding garrisons consist of a series of small groups, usually built up around automatic weapons. They form mutually supporting closed works capable of all-around defense. Depending on the nature of the terrain, the rifle company or battalion is the largest infantry unit defending a closed defensive area. The unoccupied areas are defended by fire and counterattack. The distribution of holding groups depends on the tactical situation and the terrain. Normally

they are distributed laterally and in depth over the battalion or company area in such manner that the fires of each cross the front or flank of adjacent or advanced elements.

b. Regimental reserves are primarily intended for counterattack of penetrating elements and flank defense of the regimental sector. They are held mobile in defiladed areas. They are prepared to move to departure positions for counterattack in case of penetration of the combat echelon or to flank lines of resistance in case of penetration of an adjacent regimental sector. Approaches to prospective departure positions and flank lines of resistance are reconnoitered as well as the terrain between departure positions and the combat echelon. Units on exposed flanks take special care to dispose reserves so as to meet envelopments. The size of units holding out forces for counterattack missions is influenced by the nature of the terrain and the extent of the defensive area assigned to the unit. On extremely flat terrain, lacking in cover, units smaller than a regiment will not usually retain a mobile reserve. On open terrain, with some cover, a battalion is ordinarily the smallest unit holding out a counterattacking element. Units holding exceptionally large sectors have greater need of a mobile reserve than those receiving a normal assignment. In close terrain a company or even a platoon may hold out a counterattacking echelon, especially when the unit is required to defend a relatively extensive area.

■ 98. DEPTHS AND FRONTAGES.—a. The depth of regimental sectors is usually 1,500 to 2,000 yards, depending on the terrain; that of a battalion area varies from 700 to 1,200 yards. The depth of company areas varies from 400 to 600 yards. Company and battalion areas should preferably include a mask behind which mortars and weapons assigned to antiaircraft missions can operate to advantage. The depth of platoon areas does not exceed 200 yards.

b. The frontage which a unit can adequately defend depends upon many factors, including its strength, the terrain, density of supporting fires, and the character of the opposing force.

(1) General limits for infantry units operating at war strength as part of an infantry division and with flanks protected by other troops are indicated as follows:

<i>Unit</i>	<i>Frontage in yards</i>
Platoon -----	200-400
Company -----	400-600
Battalion -----	800-1, 500
Regiment -----	2, 000-3, 000

(2) Relatively narrow frontages are assigned on those parts of a position which permit of the covered approach of attacking forces to within close range of the position. Wide frontages are permissible where the hostile approach is exposed to observation and fire over a long distance. Obstacles along the front of the main line of resistance permit increase of frontage. Vital tactical localities are usually strongly held. At times, in order to effect economy of force, extremely wide fronts may be assigned to units in localities where a loss of ground will not affect the integrity of the defense as a whole. The mission of such units should be in keeping with their capabilities. The assignment of wide frontage to a unit decreases the depth over which its holding garrisons are deployed.

■ 99. BOUNDARIES.—Boundaries in the defense usually fall between critical localities so as not to divide responsibility for their defense or that of the principal avenues of approach. Sector boundaries usually extend to the front to the effective range of weapons with which the unit is equipped.

■ 100. OBSERVATION.—During periods of active operations, all units from the squad to the regiment post one or more observers so as to hold the defensive area and its approaches under constant daylight observation. Companies and larger units establish regularly organized observation posts. In front-line platoons covered by outguards, squad observers may be dispensed with and the observation service carried out by reliefs of platoon observers. For guard service in position warfare see par. 285.

■ 101. DEFENSIVE FIRES.—The skeleton of the main line of resistance is constituted by machine guns and antitank weapons.

a. Close defense of the position is largely based upon reciprocal flanking action of machine guns. The direction of fire of flanking defenses often permits their concealment from direct frontal observation of the enemy and their protection from frontal fire. They therefore have the advantage of being able to act with surprise effect in addition to that of protection and concealment.

b. Frontal and flanking defenses mutually supplement one another and subject the attacker to convergent fires. Gaps in the fire bands of machine guns are covered by the fire of artillery, mortars, automatic rifles, and rifles. Riflemen and automatic riflemen furnish close protection for automatic weapons executing flanking fires and cover frontal sectors of fire.

c. Premature fires from positions in the main line of resistance disclose the main defensive dispositions to the annihilating fire of the hostile artillery. Machine guns charged with long-range missions fire from positions removed from the main line of resistance. They are often located on the position of the combat outposts. When the main line of resistance is on a reverse slope, some machine guns are initially moved to the crest for long-range missions. When sited to the rear of the main line of resistance, machine guns charged with long-range missions deliver overhead fires from masked positions. Fires from the main line of resistance are withheld until the proximity of the hostile Infantry compels its supporting artillery to lift its fires.

■ 102. ANTITANK DEFENSE.—a. The means at the disposal of infantry units are chiefly employed for the defense of the main line of resistance. Where combat outposts are established by infantry battalions, some of the battalion antitank weapons may be temporarily attached thereto for the purpose of dealing with hostile reconnaissance vehicles. Regimental outposts may be reinforced by antitank guns where sufficient means have been placed at the disposal of the regiment.

b. Antitank defense includes active and passive means.

(1) The active means of infantry antitank defense comprise antitank weapons and antitank mines. In a limited measure,

other infantry weapons, especially those firing armor-piercing ammunition, are effective against certain types of tanks.

(2) The passive means include (see FM 5-30)—

Antitank trenches and tank traps.

Barricades (road blocks).

c. The distribution of the means of antitank defense is based upon a reconnaissance (par. 105) which seeks to determine—

(1) Zones of hostile advance which obstacles and the nature of the terrain render impracticable or difficult for tank movement (par. 94).

(2) Areas which may be effectively interdicted by the passive means of antitank defense.

(3) Zones which must be covered by the fire of antitank weapons and mines and in which the advance of hostile tanks can be canalized.

d. Battalion antitank weapons are usually emplaced in firing positions in close proximity to the main line of resistance. Regimental weapons are preferably emplaced near a mask in rear of the main line of resistance or held in positions of readiness from which they can move to alternative firing positions covering the main line of resistance or to positions for support of counterattack in the areas of the leading battalions.

■ 103. ANTIAIRCRAFT DEFENSE.—a. The combat echelon depends, in great measure, for its antiaircraft protection on the concealment and cover afforded by natural features or intrenchments, on the dispersion of its elements, and on the antiaircraft fires of the automatic weapons of supports and reserves.

b. Weapons are specifically assigned antiaircraft missions and occupy positions covering them against ground fires. Fire distribution is prearranged.

c. Conditions under which antiaircraft fires are opened are regulated by specific instructions. They are withheld in cases where the opening of fire would disclose defensive dispositions, particularly in the close vicinity of the main line of resistance. Troops whose positions are known to have been located by the enemy fire on all low-flying hostile planes when practicable.

d. Where weapons are assigned both ground and anti-aircraft missions, the ground mission is primary. They do not allow themselves to be diverted from the ground mission by airplane attack.

■ 104. ORGANIZATION OF GROUND.—*a.* Organization of the ground facilitates communication and control, provides protection from hostile fire, and increases the effectiveness of the fire of the defender. Ground is so organized as not to disclose dispositions. Combat emplacements must be concealed or camouflaged. The development of the necessarily visible elements of a defensive system, especially the communication trenches, should not betray the real defensive organization. Communication trenches are provided only over exposed stretches and are not to be dug near combat emplacements. Dummy emplacements and false obstacles are among the most important elements of ground organization and should be constructed simultaneously with the development of a position, in accordance with a comprehensive plan.

b. The effects of fire are greatly increased by artificial obstacles and accessory defenses placed so as to delay the advance of the enemy at points where the defender's fire is most effective. In general, the location of wire entanglements is coordinated with the fire of machine guns and anti-tank obstacles with the fire of antitank weapons. The obstacle, must not, however, disclose the location of the main line of resistance.

c. Multiplication of obstacles, including wire in front of the outpost, adoption of discontinuous and irregular trace, concealment or camouflage of wire near the main line of resistance (location in high vegetation or stream beds, etc., covering wire fence with vegetation, use of low wire or thin bands simulating wire fences) are among the means relied upon to prevent obstacles from disclosing dispositions.

d. Antitank mines are more readily concealed than wire; their location in front of the wire assists in preventing hostile tanks from opening gaps therein.

SECTION III

RECONNAISSANCE, ORDERS, AND PLANS

■ 105. RECONNAISSANCE OF COMMANDERS.—Following the receipt of instructions from higher authority for the defense, the commanders of infantry units make a terrain reconnaissance, determine their plan of defense, and issue their orders. The general location of the defensive position fixed by higher commanders determines the area to be covered by their reconnaissance. The scope of reconnaissance varies with the size of the unit, and in the several echelons of command, bears specifically on the mission assigned to the unit.

■ 106. ORDERS.—*a.* Based on the results of his reconnaissance the commander determines—

(1) Course of the main line of resistance.

(2) Strength and location of security detachments.

(3) Distribution and missions of rifle units and supporting weapons; defensive areas and sectors; boundaries; reserve locations.

(4) Intrenchments, obstacles, and other field works to be constructed.

(5) Location of observation and command posts.

b. Action may be initiated by fragmentary orders if combat appears imminent; complete orders are issued when time permits.

c. In addition to the designation of a main line of resistance, the mission of companies of the combat echelon is usually given by the assignment of an area for defense. At times the locality in which the unit is to concentrate its main defensive effort may be specified.

■ 107. PLANS.—*a.* The essential elements of defense plans include a fire plan, plans for counterattack, and a plan of ground organization.

(1) *Fire plan.*—The fire plan combines into one coordinated system the action of all weapons at the commander's disposal. The basic feature of the fire plan is the provision for establishing a dense band of fire in front of the main line of resistance in which the fires of all supporting weapons of the unit are combined with those of the combat echelon

and the artillery; and for bringing the enemy under destructive fires at the earliest practicable moment in his approach to the position.

(2) *Counterattack plans*.—The prompt action requisite for successful counterattack can generally be assured only by preliminary planning. Counterattack plans are arranged to meet various situations. Details are usually prepared by the reserve commander. (See par. 282b.) Counterattack plans cover the units to be employed, direction and objective, departure positions, movement thereto from the initial position of the reserve, supporting fires, and method of coordination of the counterattack under various assumptions as to hostile penetration of the main line of resistance. Counterattacks are directed against objectives outside the defense area of a unit only on orders of the higher commander.

(3) *Ground organization plan*.—The plan of ground organization, in addition to covering the localities to be organized, provides for camouflage and dummy emplacements and indicates priority in the execution of the various works. Organization of the position is planned so that at any moment the troops are able to profit from the work already done.

b. When a short period of time is available for preparation for defensive combat, observation and local security are first assured. The essential elements of the fire system are then established. Weapons are sited and camouflaged, ranges are determined, and the necessary clearance of the field of fire carried out. The defensive works consist in the main of concealed emplacements for crew-served weapons, deep narrow pits (fox holes) and crawl trenches for riflemen, observation and command posts and aid stations, and concealed or camouflaged obstacles. The construction of dummy emplacements and obstacles ordinarily progresses concurrently with the construction of active works.

c. A more strongly fortified defensive system may be developed if contact with the enemy continues. Communication trenches, overhead cover, and additional obstacles, including extensive wire entanglements, antitank mine fields, and antitank traps are developed progressively.

SECTION IV

OCCUPATION OF POSITIONS

■ 108. ENTRY INTO DEFENSIVE COMBAT.—Entry into defensive combat may proceed directly from the approach, from an assembly position, or from any phase of combat. When time permits, deployment of troops is preceded by thorough reconnaissance and the issuance of complete orders. If combat appears imminent, the troops are moved into position quickly, and necessary modification of dispositions is made when opportunity permits.

■ 109. DISPOSITIONS ON BATTLE POSITIONS.—*a.* A rifle unit assigned to the defense of a section of the battle position is distributed in groups holding selected localities with a view to most effective defense of the area.

b. Heavy machine guns are distributed throughout the position. At least half of them are sited for close defense of the main line of resistance; they are usually located from 50 to 200 yards in rear thereof.

c. Light antitank weapons are sited for close-range defense of the main line of resistance. When available in sufficient numbers, they preferably cover mutually overlapping oblique fields of fire from emplacements masked from frontal observation. They may be assigned supplementary positions in the outpost zone.

d. Antitank guns are so located as to bring fire on their targets from the moment they come within effective range. They may be assigned positions in readiness near the regimental reserve or occupy firing and cover positions behind the first mask in rear of the main line of resistance.

e. The 81-mm mortars are located close enough to the front to have good observation of their targets, and in any case not more than 800 yards in rear of the main line of resistance. They are preferably located in rear of the first mask behind the main line of resistance.

f. As a rule, weapon and ammunition carriers do not remain in the forward part of the position. Regimental reserves keep their tactical transportation as close at hand as the terrain permits.

■ 110. OUTPOST DISPOSITIONS.—*a.* The occupation of the battle position is ordinarily covered by a completely organized outpost. Depending on the situation, the outpost may be withdrawn on orders of higher commanders. In the latter case, the security mission is carried out by combat outposts sent out by companies or battalions of the combat echelon.

b. The outpost is usually strong in machine guns and provided with antitank weapons. Platoon or company groups (supports) usually occupy those localities which mask hostile fields of view into the dispositions of the combat echelon and which in hostile possession would impair the defense of the battle position. Groups will usually be widely separated. So far as practicable, they control the intervals by provision for the development of a powerful volume of flanking fire from automatic weapons (see FM 100-5).

c. The outpost sends forward outguards for observation and local security and patrols the foreground of the position.

■ 111. CONSTRUCTION OF DEFENSES.—In general, the Infantry is responsible for planning and constructing its own defenses including obstacles. Material and technical assistance is furnished by the engineers when necessary. Details of the construction and organization of defenses are contained in FM 5-15. As far as possible, working parties for special tasks are formed of complete tactical units. Camouflage is indispensable in all ground organization. It must be undertaken before the commencement of other work and must be kept in harmony with the nearby terrain. Methods of camouflage are covered in FM 5-20.

■ 112. NIGHT DISPOSITIONS.—It is usually necessary to make certain adjustments to meet the conditions of reduced visibility. Machine guns and mortars are laid to deliver prearranged final protective fires. Preparations are made for illuminating the foreground and a special schedule of night signals is prearranged. It will frequently be necessary to hold the front lines in greater density by establishing additional combat elements in intervals which are not adequately covered by final protective fires. Rearrangement of security elements and increase in their density may be required. Where

practicable, outguards take positions affording observation of the skyline or establish listening posts.

■ 113. DEFENSE IN FOG OR SMOKE.—Fog or smoke creates conditions similar to those prevailing at night. However, their duration is uncertain, and the defense must determine in each case whether and to what extent night dispositions are to be adopted.

SECTION V

CONDUCT OF DEFENSE

■ 114. OUTPOST.—*a.* Higher authority defines the general conduct of the outpost in case of hostile attack. Unless otherwise directed by higher commanders, outposts hold their position. The combat action of an outpost is subject to the general procedure governing the action of a defensive force deployed on a wide front.

b. So far as is consistent with the preservation of its fighting power, the outpost conducts itself in such a way as to deceive the enemy as to the nature of the resistance confronting him and the location and dispositions of the battle position. The volume of fire of its automatic weapons enables the outpost to simulate the effect of heavily held lines. By the use of advanced posts in connection with supporting points of the outpost line of resistance, the enemy may be deceived as to the defensive dispositions and misled into a faulty deployment. It will also generally be of advantage to the defense if the outpost line does not closely parallel the main line of resistance.

c. The outpost carries out its information mission through observation posts, outguards, and reconnaissance detachments and patrols. Reconnaissance elements maintain contact with hostile forces and hold their movements under surveillance from commanding terrain in the foreground of the outpost. If the enemy has established close contact with the outpost line, it will frequently be necessary to resort to reconnaissance in force or raids to secure needed information as to his dispositions.

■ 115. DEFENSIVE BATTLE.—*a.* If the assembly for attack of the hostile Infantry is discovered, the fire of the mass of the artil-

lery and attacks by combat aviation are directed on the known or suspected assembly areas. Where these areas are within the range of the infantry mortars, these weapons reinforce the fire of the artillery. If the enemy debouches from his assembly areas at long range, a portion of the machine guns opens fire from emplacements removed from the close vicinity of the main line of resistance. Preferred targets for mortars are covered routes of approach, areas defiladed from artillery and machine guns, and hostile machine guns in masked positions. Machine guns assigned to long-range missions fire with preference on hostile, unarmored vehicles and on infantry groups and machine guns exposing themselves to view within effective range.

b. Machine guns covering the main line of resistance and rifle company weapons open fire when the enemy arrives within ranges which compel him to lift the fire of his artillery to rearward areas. If the enemy succeeds in effecting a close approach to the main line of resistance, all close-in prearranged fires are released. Forward machine guns cover arcs of fire limited by their final protective lines, rear machine guns fire overhead fires, and mortars and artillery lay down prearranged final protective fires or barrages, in accordance with the general defensive fire plan. These fires may be released on pyrotechnic signals sent up by front-line company commanders, on telephonic notice, or on orders of higher commanders. They can be delivered under any conditions of visibility. If made on call from the front line, they are delivered only in the sector where the call is made and not along the entire line. If the enemy assaults, he is met with rifle fire, grenades, and counterassault.

c. When tanks lead the hostile attack, the long-range anti-tank guns, usually sited in positions to the rear of the main line of resistance, open fire as soon as their targets arrive within effective range. The battalion antitank weapons, sited in or near the main line of resistance, withhold their fire until the hostile tanks arrive within close range of the main line of resistance. Against heavily armored tanks, their fire is principally directed against the track assemblies. It is coordinated with other close-in defensive fires. Riflemen, automatic riflemen, and supporting weapons crews take cover against

attack of tanks but open fire with armor-piercing ammunition against lightly armored vehicles. Certain rifle groups may be designated to attack track assemblies with prepared high explosives. Other riflemen and automatic riflemen in the main line of resistance remain concealed until the appearance at close range of the hostile Infantry.

d. If the enemy succeeds in entering the position, the defender seeks to strengthen and hold the flanks of the gap and counterattack the penetrating elements from the flank rather than attempt to close the gap by throwing troops across the head of the salient.

SECTION VI

DEFENSE IN POSITION WARFARE

■ 116. GENERAL.—The general procedure of defensive combat applies to defense of a fortified position. Features of the defense which in open warfare can only be covered by general instructions are intensively organized in a position warfare.

■ 117. CHARACTERISTICS.—The chief characteristics of the defense of a fortified position are—

a. Intensified development of defensive works, affording increased protection against fire and the weather and rendering the progress of an attacker more difficult.

b. Large amount of artillery, ammunition, and matériel which the time available permits the opposing forces to accumulate.

c. Intensive organization of observation and signal communication. This, together with the large amount of ammunition available and increased accuracy of artillery and infantry heavy weapons, made possible by careful adjustment of fire, permits the defender to place his fires to best advantage and maneuver them more readily than in open situations. Fires are adjusted closer to the organizations they cover, and the fire plan is perfected and verified so that no gap can exist. Artillery fires are combined more closely with those of the Infantry.

d. Intensive organization of the service of information.

e. Detailed organization of all defensive action.

■ 118. **EFFECTIVES.**—As defensive organization is perfected, the number of effectives on a position may be reduced or the frontages of units increased without impairing the effectiveness of the defense. Minimum forces may be left in sectors where an attack is not threatened, provided information agencies continue their activity and detailed arrangements are made in every echelon of command for reinforcement.

■ 119. **DISTRIBUTION OF TROOPS.**—*a.* Higher authority determines the position on which the principal resistance is to be offered in case of a hostile attack in force. Every effort is made to conceal its location from the enemy. It is not strongly held until shortly before the start of the battle.

b. It is usually desirable in position warfare to hold the outpost position against local attacks. In such case, the outpost will often be composed of complete battalions reinforced by antitank units and supported by artillery, which organize close-in defensive fires generally similar to those of a battalion defending the main line of resistance of a battle position. An outpost battalion may be assigned a frontage of from 2,000 to 2,500 yards under these conditions.

■ 120. **LOCATION OF DEFENSES.**—*a.* The defense is based upon the foreknowledge that all deep, conspicuous trenches will be located by the enemy and subjected to the hostile preparatory bombardment. Conspicuous fire trenches on the main line of resistance are avoided. For details of entrenchments see FM 5-15.

b. Deep trenches are provided to serve as avenues of communication, for protection in quiet periods, and shelter against weather. They are none the less important. Without them the fighting capacity of the troops falls off rapidly and the service of supply becomes difficult.

■ 121. **DUGOUTS AND SHELTERS.**—Dugouts and concrete shelters are the only forms of protection against fire which are of lasting value. They constitute an essential means of conserving the fighting capacity of the troops. Efforts should be made to accommodate all reserves in shellproof shelters. Dugouts or groups of dugouts should enable troops to be sheltered by complete units to facilitate command and supply. Deep dugouts in the front part of a position do not per-

mit the prompt egress of troops and in case of an attack may become mere man traps. Concrete shelters should be constructed in the advanced portion of a position whenever possible. They form the skeleton of the main line of resistance of provisional rearward positions.

■ 122. READINESS FOR ACTION.—Special forms of increased readiness for action are provided in case indications of a hostile attack are observed. The following measures are taken:

a. Outpost and combat troops occupy their combat emplacements and reserves are disposed in readiness to move.

b. Men temporarily detached or engaged in special tasks report to their units.

c. Work which requires working parties to leave the vicinity of their combat posts ceases.

d. Communications are tested.

e. Patrolling becomes more active; frequent raids will be prescribed; observation is redoubled.

■ 123. MAINTENANCE OF CONTACT.—Constant vigilance must be exercised to maintain contact, since the enemy may effect a rapid withdrawal, leaving only a screen in place. In addition to vigilant patrolling, small raids to obtain information as to the continued presence of the enemy are made whenever information from any source indicates a withdrawal.

SECTION VII

WITHDRAWAL FROM ACTION

■ 124. GENERAL.—*a.* A withdrawal may be effected to extricate the defense from engagement with hostile forces or with a view to transferring the main defensive effort to a rearward position. In either case a covering force is detailed to protect the withdrawal. In the first case the covering force may be eventually relieved by a rear guard; in the second case by an outpost.

(1) The covering force is placed in position in rear of elements in contact with the enemy or on the flank of the line of withdrawal. Elements in contact with the enemy withdraw straight to the rear under the protection of the covering

force and of small detachments which they leave in position. These detachments withdraw in turn past the covering force after their units have broken contact. The covering force delays the enemy and permits the uninterrupted retrograde movement of the main body until relieved by another security detachment.

(2) A withdrawal by daylight involves such heavy losses and so great a degree of disorganization that as a rule it is preferable to hold out at any cost until night and effect the withdrawal under cover of darkness.

(3) Any order for withdrawal from an uncertain source must be disregarded. Orders for withdrawal are especially suspicious when passed along a line of skirmishers.

b. The steps involved in withdrawal are, in general—

(1) Selection of an assembly position where the several units will assemble when withdrawn, or of a defensive line on which resistance will be renewed.

(2) Selection of a covering position to be occupied by reserves.

(3) Designation of a covering force and its movement to the covering position.

(4) Withdrawal of transportation and evacuation of such stores as can be removed and destruction of unremovable stores.

(5) Withdrawal of reserves to local covering positions.

(6) Withdrawal of the combat echelon.

c. A general covering force protects the withdrawal; in addition subordinate commanders employ reserves as local covering forces to assist in extricating their units in daylight withdrawals. Observation and a clear field of fire to front and flanks at the longer ranges and covered terrain in rear, favorable to withdrawal, are desirable characteristics of covering positions. Local covering forces are formed from available reserves with suitable attachments of machine-gun, mortar, and gun units.

■ 125. NIGHT WITHDRAWAL.—*a. Reconnaissance.*—(1) Subordinate infantry units initiate daylight reconnaissance of routes of withdrawal and assembly positions as soon as informed of a contemplated withdrawal. Reconnaissance

groups are limited in size. They include men who are later used as guides.

(2) Assembly areas should be easy to recognize, accessible by clearly defined routes, and far enough to the rear for reorganization to take place without hostile interference.

b. Screening of withdrawal.—(1) The movement is screened by small groups left in immediate contact with the enemy, supported by slightly larger groups. The screening force on the front of a battalion does not exceed the equivalent of a rifle company, reinforced by machine guns, mortars, and antitank weapons. The elements in immediate contact with the enemy will rarely exceed the equivalent of two rifle platoons on the front of a battalion.

(2) A commander for the screening elements in each battalion sector is usually designated by name and provided with personnel and equipment for command, communication, and control. He assumes command at a specified time.

(3) If an outpost is in position, it constitutes the screen; otherwise the withdrawal is screened by elements taken from the combat echelon. The foremost groups cover the principal routes of approach to the position. Groups in rear are located along the more dangerous avenues of advance within the position. Readjustment of front-line elements must not be extensive and should be along simple lines. Each platoon may leave a squad in place. Machine guns with the screening elements are usually single guns left in positions occupied during daylight.

(4) The troops left in contact with the enemy simulate the normal activity of fully occupied positions. They send up rockets and flares, execute fires from different localities, and patrol actively in an effort to give the impression of a heavily held position.

c. Execution of withdrawal.—(1) Administrative and supply elements and reserves usually withdraw soon after dark.

(2) Combat echelon elements, other than those left to screen the movement, withdraw at a designated hour. Small elements move to designated platoon assembly positions; platoons to company areas; and companies then move to battalion assembly areas.

(3) Infantry heavy weapons must be moved by hand during early stages of the withdrawal. It is usually impracticable to attempt any extensive forward movement of the tactical transportation. Depending on their location, the weapons carriers rejoin units at designated points, often in battalion assembly areas. The weapons carriers of gun units rejoin weapons as far forward as practicable. Some motor transportation may be left with the screening forces to expedite their withdrawal.

(4) All movement is without lights. Unusual noises are avoided.

(5) The screening force remains in position until a designated hour. It should be withdrawn in time to come under the protection of the covering force before daylight.

■ 126. DAYLIGHT WITHDRAWAL.—*a. Orders and reconnaissance.*—Little warning will be given, and reconnaissance will usually be coincident with the withdrawal. Withdrawal orders of infantry commanders are usually brief, fragmentary, and oral. They prescribe the general position to which withdrawal is to be made, zones of action, initial assembly areas, the time of starting the withdrawal, the sequence of withdrawal, and the method of covering the withdrawal.

b. Execution of withdrawal.—(1) Sequence in withdrawal is regulated by the general guide that the most rearward elements and those least closely engaged are the first to be withdrawn. Administrative and supply establishments and trains move first. The general covering force occupies the position designated by higher authority.

(2) Infantry reserves take rearward positions with the longest available field of fire or most effectively covered by an antitank obstacle, intermediate between the general covering position and the combat echelon, to protect the withdrawal of the troops engaged. Whenever practicable, they take position to the flank of withdrawing troops so as to have a clear field of fire against pursuing forces.

(3) The combat echelon withdraws so as to unmask the fire of covering troops as far as practicable. Units assemble and reorganize under the protection of the first cover position and form on the next succeeding cover position as an echelon of the withdrawing force.

(4) The further movement in withdrawal to the assembly position takes place by successive echelons in accordance with the procedure of delaying action.

(5) The use of smoke and the execution of demolitions are generally regulated by higher authority but may be entrusted to infantry units to which the necessary technical personnel is attached. Smoke screens must cover extensive fronts. They may sometimes be established by firing hay, grain shocks, etc. Bridges are not destroyed except on order of higher authority, unless it is apparent that they are about to be captured.

(6) Antitank units not engaged take positions covering stream crossings, defiles, and other points of obligatory passage for armored vehicles, and important points on routes of communication.

SECTION VIII

DELAYING ACTION

■ 127. GENERAL.—The general procedure governing delaying action is covered in FM 100-5. The methods employed depend on the situation and vary from the activity of small detachments making use of road blocks and demolitions to the defense of a position for a limited period. The enemy is forced to deploy at great distances and to prepare attacks on successive positions held by alternating echelons of the defensive forces. The defending forces execute successive withdrawals and seek to avoid becoming closely engaged. The dangers inherent in a daylight withdrawal, however, especially when the hostile forces include strong mechanized elements, frequently induce the delaying force to remain in position, in whole or in part, until nightfall, even accepting a close engagement.

■ 128. SELECTION OF POSITION.—Delaying positions should offer favorable observation to the front and flanks, long-range fields of fire, covered routes of withdrawal, and secure flanks. These requirements are usually best met by crest positions which afford distant observation and long-range fields of fire and mask the terrain in rear of the position. An effective

obstacle may be of more importance than commanding terrain where a considerable delay must be effected on any single line or when tanks closely press the pursuit. Successive positions should be separated by sufficient distance to prevent hostile artillery from simultaneously taking two positions under fire from the same emplacements. Infantry units may however, have to occupy intermediate positions for mutual support in an echeloned withdrawal, especially in cases where the enemy closely presses his pursuit. In such case, it is often advantageous for each position to be within supporting range of the heavy weapons occupying the next.

■ 129. DISTRIBUTION OF TROOPS.—*a.* Infantry units cover wide frontages; under favorable conditions they may be approximately double those permissible for a sustained defense. The increased frontages are held by employing a larger proportion of the troops in the forward part of the position, reducing the strength of reserves, increasing the intervals between occupied localities.

b. Weapons carriers are held in defiladed areas, as close as practicable to their weapons, prepared to move to the rear over reconnoitered routes.

■ 130. FIRE PLAN.—Infantry units prepare two general series of fires: long-range and close-in defensive fires. The former constitute the principal mission unless close protection missions are contemplated. The long-range fires are executed by the mortars and heavy machine guns. They are assigned positions facilitating withdrawal by carrier. Each machine-gun section is usually assigned a wide sector for observed fire. The greater tactical mobility of light machine guns favors their use in close combat situations. The action of antitank guns is similar to their action in defense. Automatic riflemen and riflemen are used primarily for the protection of other weapons and the execution of reconnaissances. In close country, riflemen form the principal elements of delaying action.

■ 131. WITHDRAWAL.—*a. General.*—Withdrawals are preferably made by night. Anticipation of the movement enables it to be carried out under relatively favorable conditions. It is

effected generally as indicated in section VII. Withdrawals are initiated under conditions fixed by higher commanders. They may commence at a designated hour, when hostile forces reach a certain terrain line, or when adjacent units have effected a withdrawal.

b. Reconnaissance.—Close touch with pursuing forces is maintained by aggressive patrolling. Defladed routes must be held under constant surveillance.

CHAPTER 4

SPECIAL PHASES OF OPERATIONS

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SECTION I

COMBAT IN WOODS

■ 132. CHARACTERISTICS.—Combat in wooded areas results in decreased effectiveness of all fire and of mechanized forces; increases the importance of close combat and surprise; impedes the maintenance of direction, control, and communication; promotes concealment and effectiveness of ambushes; and increases chemical effect. Special training in this type of combat is necessary.

■ 133. ATTACK.—*a. General.*—The attack of a woods comprises the advance over open ground to the edge of the woods, the advance through the woods, and the egress therefrom. The forward and rear edges, crossroads, and important lateral routes of communications within the woods usually are intermediate objectives.

b. Attack of forward edge.—The forward edge is taken by methods similar to those used against any terrain objective. The defender observes the advancing troops from his own concealed position. Smoke may be used to neutralize this advantage; or the approach to the edge of the woods may be made at night. The advance continues after reorganization just within the woods.

c. Advance within woods.—(1) The advance within the woods is organized to maintain cohesion between attacking units. Precautions are used to prevent loss of direction. Compass directions are always assigned. Movement is by bounds with periodic halts to restore contact and cohesion,

either on predetermined lines or at prescribed periods. Paths or roads perpendicular to the direction of advance are especially useful lines upon which to coordinate the advance of the heads of the leading elements and gain control.

(2) Dispositions depend on the difficulty of movement and the visibility within the wood. In sparse woods the leading elements are in line of skirmishers. In dense woods the advance is in line of small columns. Scouts precede and reconnoiter to the front and flanks, remaining preferably within sight of their units. As soon as the scouts have indicated that all is clear, the troops advance and the scouts move forward. When the scouts report an obstacle across the line of advance, additional reconnaissance is desirable to discover hostile posts located to sweep the obstacle with fire. Silence is maintained during the advance.

(3) The advance is a series of maneuvers to gain local objectives such as trail crossings and clearings. Upon encountering resistance, leading units usually seek to envelop its flanks, while units in rear and supporting weapons prepare to support the action. Against scattered resistance, an enveloping maneuver is launched as soon as practicable, with little support by artillery and infantry supporting weapons.

(4) Strong columns, echeloned in depth, are usually employed to advance along the lateral edges of a wood. They operate against the flanks of resistances holding up the attacking units in the wood.

d. Debouchment from a wood.—The troops debouch by surprise from the far side of a wood after reconnaissance and under the protection of a strong base of fire. Before debouchment, units halt and re-form far enough within the wood to be out of hostile view. The next position to be occupied is observed. If heavy fire from artillery on the edge of the wood may be expected as the units begin to debouch, the movement of the leading platoons may be carried out in a single rush. When danger is greater from close combat weapons than from artillery fire, the egress may be by infiltration. The next objective should mask the edge of the woods from hostile observation and screen the egress of subsequent echelons.

e. Small woods.—Small woods are usually neutralized by fire, outflanked, and later mopped up by reserve units.

■ 134. DEFENSE.—*a. Value.*—(1) Isolated small woods usually attract artillery fire; however, they provide some protection against tanks. Decision to occupy them depends on the probable hostile artillery effect or likelihood of attack by hostile mechanized elements.

(2) Large wooded areas favor the construction of strong, well-concealed defense areas, surrounded by artificial obstacles. Such wooded areas impede offensive operations and enable weak forces to make a stubborn resistance.

(3) Large woods in rear of a position are of value for concealing reserves and communications and in covering withdrawals.

b. Location of main line of resistance.—(1) A wooded area may be defended by locating the main line of resistance in front of the woods, along the forward edge, within the woods, or in rear thereof. Tactical or terrain considerations are the determining factors.

(2) Usually the main line of resistance will be within the woods, with the forward edge of the woods held by security detachments. If the main line of resistance within the wood is oblique to the outpost position located outside the woods, it affords flanking fires and deceives the enemy.

c. Fire plan.—(1) The defense of the main line of resistance within a wood is organized to surprise the attack with a dense system of close-in defensive fires. Roads, paths, and trails are enfiladed by rifle and machine-gun fires. Cleared spaces and the forward edges of concealed obstacles are swept with flanking fires.

(2) Lanes are cut for machine-gun fires along the front and flanks of organized areas. Thinning trees and undergrowth is better than a complete clearing. The lack of observation for the control of fires frequently limits effectiveness of artillery and of infantry mortars. Where there are no naturally cleared areas available as battery positions, they are prepared. The flat trajectory of the field artillery guns requires more clearing than do the high-trajectory infantry mortars. Because of their greater range and defensive echelonment in depth, the gun batteries are usually able to find suitable natural cleared firing positions further in rear of the battle position. Artillery usually covers the intersec-

tions of roads and trails, defiles through which the hostile attacking Infantry will have to pass, and likely hostile assembly areas. The high-angle fire of infantry mortars permits the 81-mm platoon to be sited in limited cleared areas, and its plunging fire is affected but little by the trees as the projectiles strike. The 60-mm mortars are usually attached to rifle platoons, where their fire can be directed by the platoon leader against enemy attacking dispositions as they are disclosed during the attack.

(3) Concealment of a few riflemen in trees often adds to the effectiveness of the defense.

d. Organization of defense.—(1) The lateral edges are strongly defended in order to prevent outflanking action.

(2) A small holding garrison may be located in rear of a shallow wood to enfilade enveloping attacks, to support counterattacks, and prevent the enemy from debouching in case he penetrates the wood.

(3) Obstacles are erected to protect the main line of resistance, prevent the use of paths and trails, canalize the hostile advance into areas swept by the fire of concealed automatic weapons, and cause the attack to lose direction and impetus. Routes are reconnoitered and marked.

e. Distribution of troops.—(1) Limited fields of view and fire require reduction of distances and intervals between groups and individuals with consequent initial diminution of the depth and frontages of units. The strength of effectives required to hold a wood may be reduced after it has been properly organized.

(2) Areas held by front-line platoons are elongated and usually approach a linear formation. Local reserves, prepared for immediate counterattack, are disposed in smaller and more numerous groups than in open terrain.

(3) So far as practicable, the defense avoids the occupation of points easily identified on maps or which can be accurately located by hostile ground or air observation.

(4) When the defensive position is within the wood or in rear thereof, the forward edge is usually occupied by small detachments to observe and delay the enemy and screen the main line of resistance.

f. Chemicals.—Chemicals are highly effective in woods. Areas which have been subjected to concentrations of highly persistent gas should be evacuated.

SECTION II

NIGHT OPERATIONS

■ 135. OBJECT.—The object of night operations may be to concentrate secretly before an attack; to approach a hostile position for an attack at daybreak; to cross a zone made impassable by hostile fire by day; to withdraw; to attack; to reconnoiter; to make a relief; to execute works; or to bring up supplies.

■ 136. CHARACTERISTICS.—*a. Decrease in effectiveness of aimed fire.*—With poor observation, the effectiveness of aimed fire is greatly decreased. The importance of the defensive fire of fixed weapons that can be laid on a definite line of fire by day is increased correspondingly.

b. Difficulty of movement.—Maintenance of direction, control, contact, and communication between units is extremely difficult. However, decrease in the effectiveness of fire permits denser formations.

c. Sensitive morale.—Troops at night are impressionable. The importance of surprise by the offense and of the preparation of ambushes by the defense is consequently increased.

■ 137. MARCHES.—Night marches must be carefully prepared. Whenever practicable, the route is reconnoitered and marked prior to the commencement of the march. Columns are kept well closed up, distances are greatly reduced, guides are stationed at cross roads to prevent the wrong routes being taken, and numerous connecting files are provided. Special attention is given to the avoidance of lights and noise. Daybreak should find the troops in position or in concealed localities. When it is important to avoid observation by hostile airplanes, the command, so far as practicable, should march in small units and avoid main routes.

■ 138. CROSS-COUNTRY MOVEMENTS.—*a. In movements off roads at night, the route should be plotted and the march directed by the compass. A circuitous route which follows*

easily distinguishable terrain features is better than one more direct but less clearly marked.

b. An advance to terminate in an assault at daybreak should be so timed that the troops will arrive just before the assault is to be made.

■ 139. ATTACK.—*a. General.*—Although night attacks are difficult and hazardous operations, they are very effective when properly executed. Against an inferior or a demoralized enemy they are particularly effective.

b. *Preliminary considerations.*—(1) Troops for a night attack should be well trained and disciplined, in good physical condition, fresh, and under complete control initially.

(2) Open terrain favors control and movement and should be selected for the attack. Woods or badly cut-up ground render difficult the maintenance of direction, control, and contact. A well-defined line of departure near the objective and directly opposite it is desirable. The objective should be recognizable in the dark. Usually only short advances are practicable.

(3) Some visibility is desirable. A wind blowing from the direction of the defender promotes secrecy of the attack.

(4) The time of the attack depends upon the object sought. If the operation is a prelude to a daylight attack to exploit the success gained by the night attack, it is launched shortly before daylight. The hour depends upon the time considered necessary to capture the objective and to reorganize. If capture and consolidation of the objective are not to be followed shortly by a further advance, the attack should be launched before midnight so that defense may be organized by daylight.

c. *Orders.*—(1) The attack order goes into greater detail than a similar order for an attack by day. Provision is made for every eventuality that reasonably can be foreseen.

(2) The order specifies routes of approach, assembly positions, line of departure, formations, compass direction of the attack, objective, means of identification of friendly troops, means of preserving secrecy and maintaining contact, action of the artillery and other supporting weapons, action to be taken upon capture of the objective, rallying points if checked, location of the reserve and its action, prearranged signals and

communications, and when practicable the designation of the locality where secondary deployments will be made.

d. Preparation by subordinate units.—(1) Commanders of units receiving orders for a night attack promptly warn their subordinate commanders so that they may make such daylight preparations as are not prohibited in the interests of secrecy.

(2) Daylight reconnaissance is essential. The line of departure is selected and marked, when practicable. Routes of advance are located and identified. Compass bearings are taken, and direction points which can be identified at night are chosen. Features such as streams, fences, ravines, ridges, roads, or telegraph lines running in the desired direction are noted, and the route of advance definitely selected. Plans are made to avoid or remove any obstacles that might impede or confuse the advancing troops.

(3) Troops are given as much rest as practicable before the attack. Hot food shortly before the attack is desirable.

e. Cooperation of other arms.—(1) Artillery fires supporting a night attack must be prearranged. Requests for such fires must be made as early as possible to permit their preparation. Artillery fires or preparations should avoid arousing the enemy's suspicions prior to the attack. Artillery should be ready to place heavy fire on the hostile position to cover withdrawal of the attacking Infantry, should the assault be repulsed.

(2) Aviation may drop flares behind the hostile lines to guide attacking troops, and when the attack succeeds, may illuminate the terrain over which hostile counterattacks might be launched.

(3) Engineers demolish obstacles and help organize captured ground.

(4) Chemical warfare units may interdict likely avenues of approach after the position has been captured, or screen the position at daylight.

f. Maneuver.—Only the simplest maneuvers are likely to succeed in a night attack. Units must attack straight to the front. Detours of a few yards are permissible for individuals or small parties.

g. Advance.—(1) The advance is made in compact columns until close to the enemy. Partial deployment into squad columns with reduced intervals and distances is made by the leading elements at selected points before coming within assaulting distance. Bayonets are fixed before contact with the enemy is expected, and far enough away so that he cannot hear the sound. Rifles are unloaded.

(2) The leading unit of each column acts as a covering detachment. An officer moves ahead, preceded at the limit of visibility by scouts. The officer is followed closely by a selected group, including men speaking the hostile language. The advance is made by short bounds; at each halt the scouts reconnoiter for the next advance. Halts are of the shortest possible duration. If a hostile sentinel challenges, answer is made in the enemy's language, and the scouts and the group at the head of the column close in with the bayonet without firing; the rest of the troops lie down. Similar action is taken if the enemy fires one or two shots; precautions must be taken to prevent desultory firing by the enemy from bringing on a premature assault.

(3) Officers with compasses constantly check the direction of advance. An officer or noncommissioned officer marches at the rear of each column to prevent straggling and enforce silence.

(4) A silent, stealthy advance is necessary for surprise. Talking and rifle fire are prohibited. Units which lose contact with adjacent units continue to press forward toward their own objectives.

(5) The rate of advance varies with the terrain. Far from the enemy and over favorable terrain it may be a mile an hour. When closer to the enemy, the care necessary for secrecy should limit the rate of advance to 100 yards in from 6 to 10 minutes.

h. Assault.—The assault is delivered with the bayonet, without firing, when the attacking force is near enough to the hostile position or the enemy opens fire at close range. Hostile firing should not induce the troops to launch an assault from too great a distance. Aggressive leadership by officers and noncommissioned officers is required.

i. Reorganization.—Reorganization begins as soon as the objective is captured. Confusion and intermingling of units are corrected. Officers and noncommissioned officers form groups of men and place them in the more decisive localities. Losses are replaced or units combined as necessary.

■ 140. DEFENSE.—*a.* The principal means of defense against night attack are the fires of fixed weapons, obstacles, illumination of the foreground, patrols and outguards, and counterassault.

b. These defensive means are combined to take the attacking forces by surprise. Ambushes are prepared by constructing concealed obstacles along the most probable routes of hostile advance and siting fixed weapons to sweep them with fire. Outguards provide for the security of the command, preparing ambushes in advanced positions to break the attack before it reaches the defensive position or to enable capture of hostile patrols. Local reserves are posted to recapture portions of the position which may be taken. Larger reserves must be able to form rapidly at designated assembly positions and proceed therefrom along previously reconnoitered routes to any part of the front where they may have to intervene. Large-scale counterattacks are usually postponed until daylight.

SECTION III

ATTACK AND DEFENSE OF RIVER LINES

■ 141. MILITARY IMPORTANCE.—River lines are important military obstacles. Their protection against mechanized vehicles frequently determines the location of defensive or delaying positions. The military importance of a river line depends upon the width, depth of water, current, stream bed, banks, and facilities available for crossing.

■ 142. HASTY CROSSING.—*a.* In an exploitation or a pursuit, attacking forces may come upon a stream line before the defender has time to utilize it as a barrier. Advance guards and pursuing detachments frequently have occasion to cross a river by surprise, making use of the means at hand, and under direction of the subordinate commanders on the

ground. Such crossings are frequently made without the assistance of engineers or special equipment. Infantry commanders of leading units cross small detachments at selected points to seize a bridgehead on the enemy bank.

b. Crossing is accomplished by use of improvised means—boats found in the neighborhood, imperfectly destroyed bridges, etc. Where no means are immediately available, Infantry crosses by swimming and rafts made from its own equipment. All the combat equipment of a rifle company can be crossed with swimmers as follows:

(1) The 2-man rifle float can be prepared by 2 men in 7 minutes. The two shelter halves (one on top of the other) are placed on the ground, and the remainder of the two packs and the clothing of two soldiers are placed in the center of the canvas. The rifles (crossed to give rigidity) are placed on top of the packs and clothing. The float is completed by binding the four corners of the outside shelter half to the four extremities of the rifles by means of the shelter tent ropes. In a similar manner, using two 3-foot sticks or two shelter tent poles instead of rifles, a light machine gun, a 60-mm mortar, or two automatic rifles can be floated in a shelter tent.

(2) Ammunition and other supplies vital to the initial stage of the operation on the enemy side are apportioned to the two-men teams and ferried across.

c. In hasty crossing, control is left initially to the subordinate infantry commanders on whose initiative the crossing was effected. Higher commanders release additional means to their control until sufficient troops are across and the situation clarified by the successive commanders in the chain of command.

(1) Rapid exploitation of the hasty crossing by the small infantry units is necessary to prevent the enemy from concentrating against the isolated leading elements and destroying them. Detachments which have gained a footing on the far bank are reinforced at once; company commanders push forward to seize a bridgehead to cover a crossing point for additional troops.

(2) Higher commanders organize the crossing in force behind the most successful leading elements. Combat aviation

is called upon to attack enemy forces concentrating against the bridgehead troops. Leading companies hold their positions regardless of losses until reinforcements from the battalion can reach their positions.

(3) Battalion commanders push heavy weapons forward promptly to reinforce the bridgehead elements. Fire support from the friendly bank is rarely practicable due to lack of observation and of liaison with the troops on the hostile bank.

(4) Control is usually by rifle company commanders, until sufficient forces have been crossed to build up a battalion defense area on the bridgehead positions. Regimental and higher commanders send antitank guns forward to points where they can be crossed quickly to protect the bridgehead troops from mechanized attack as their advance takes them into terrain where conditions for enemy mechanized attack are favorable.

(5) As the leading battalions establish themselves, lateral action to join initial battalion defense areas may be necessary to enlarge the bridgehead and protect construction of bridges for crossing the main body.

■ 143. FORCED CROSSING.—*a.* A forced crossing is one made against alert enemy opposition. Such crossings are usually made at night, preferably shortly before daybreak. Every effort is made to insure surprise at the point of crossing. Fog and smoke may be used advantageously to screen a crossing at daybreak.

b. The initial crossing force (bridgehead troops) is assigned the mission of seizing a bridgehead for the crossing of the main body. The bridgehead is established at sufficient distance from the river to protect bridging operations from hostile ground observation and the remainder of the command from undue interruptions from hostile artillery fire.

(1) The first troops usually cross by assault boats or on foot bridges. The plan of crossing requires the leading infantry units to gain a foothold on the hostile bank by surprise; fire support by combat aviation or artillery is employed only after the enemy has discovered the crossing.

(2) If the enemy has organized the opposite bank and holds it in force, an aviation or artillery preparation may be

employed to dislodge him and to protect engineering operations and the crossing of the Infantry. When the width of the river permits, an infantry base of fire may be established on the friendly bank to support the crossing of the leading companies; it deals chiefly with hostile automatic weapons covering the crossing points.

(3) Engineers may be attached to infantry battalions and at times to companies to assist in crossing streams. If the stream is wide, deep, or swift, the embarkation and crossing of the Infantry are usually under the direction of the engineers.

(4) The leading battalions select as initial objectives the points on their front from which the enemy can place observed small-arms fire on the crossing. These objectives are allotted to the leading companies and serve as assembly areas for continuation of the attack on the bridgehead objective. The company objectives should be easily recognizable by clearly defined features, such as a road, railroad, houses, etc., and usually include the slopes immediately dominating the stream.

(5) The leading battalions cross on a broad front. Rifle platoons cross simultaneously, land, and push forward to their company objectives.

(6) Platoon leaders select prominent features of the terrain to rally the boatloads of their men as they land. The river bank is cleared promptly. When rifle troops land in darkness they hold their fire, allow the enemy groups near the bank to disclose themselves by firing, then close with the bayonet.

(7) Rifle company commanders play no part in any melee which develops along the banks. They usually move with a composite group of their weapons platoon and a few selected bayonet fighters as protection. The group moves directly to the company objective, emplacing company weapons to repel a counterattack or to serve as a base of fire for further advance toward the bridgehead objective. The battalion commander sends his heavy weapons forward to reinforce his leading companies, personally crossing as soon as any of his leading companies have seized their objectives. He organizes the attack from assembly areas on the initial objective, em-

ploying such elements of the rifle companies as are available to form the spear head of the attack toward the next objective. The regimental commander attaches regimental weapons to leading battalions which have been successful and utilizes his reserve to extend the attack and secure the bridgehead position.

■ 144. COORDINATION OF INFANTRY AND ENGINEERS.—*a. General.*—(1) A river crossing is an operation requiring close coordination of the leading infantry units and engineer troops charged with the supervision of the crossing.

(2) Success requires careful planning and a thorough understanding of the detailed arrangements by the subordinate infantry officers who must lead troops in the initial waves and the subordinate engineer officers who must put the boats in the water.

b. Reconnaissance.—(1) A ground, air, and map reconnaissance of the area is made by the commander or his representative and the engineer officer in charge to determine the points of crossing. Having decided upon the exact points of crossing, the engineer officer in charge makes a detailed reconnaissance to make measurements and to prepare technical plans for the crossing.

(2) Both tactical and technical considerations should be considered in the selection of the site, but tactical considerations are the governing factors.

(3) When time and concealment permit, reconnaissance should be made by commanders to include company commanders of the leading rifle companies.

(4) Reconnaissance activities are controlled so as not to disclose the plan to the enemy. Reconnaissance parties avoid detection from the air or the enemy side of the river.

c. Crossing of reserves.—Reserves of infantry regiments frequently cross in ponton boats or ferries, which have greater capacity than the assault boats used by leading battalions. They avoid all congestion or halts near the river bank. They may use their machine guns to reinforce the antiaircraft defense of the ferry site while they are crossing.

d. Antiaircraft security.—Air advantage is essential in river crossing. Antiaircraft weapons usually remain silent until the crossing is discovered by the enemy. Thereafter the

neutralization of all hostile air operations over the crossing area is vital. The plan of antiaircraft defense includes the protection of the engineer bridging detachments in assembly areas, and during the advance to the river and the construction and operation of the bridges; and protection of the infantry covering troops in assembly areas, in ferrying operations, and in the construction and operation of the foot-bridges. Weapons of infantry supporting and reserve units may assist antiaircraft units, or be employed in lieu thereof, in antiaircraft fire missions.

e. Antitank security.—Bridgehead troops must be prepared for counterattacks, particularly by tanks, soon after their crossing. It is of utmost importance that antitank weapons be sent across with the leading companies so that they can reach the initial objective of these troops soon after the leading rifle platoons. Regimental antitank weapons (37-mm guns) are attached to the bridgehead battalions.

■ 145. ASSEMBLY AREAS.—*a. Initial.*—Infantry battalions are moved to initial assembly areas for the crossing as close to the river line as is consistent with the general tactical plan. To avoid discovery by the enemy of the crossing front, initial battalion assembly areas are usually located within easy night marching distance of the river line.

b. Final.—(1) Final assembly areas are selected for each battalion crossing in the leading echelon. Frequently final assembly areas are assigned to each leading rifle company, the companies of each battalion marching directly from the battalion initial assembly area to company final assembly areas.

(2) The final assembly area is the point where assault boats are placed in readiness for the final carry by hand to the launching area at the river bank. Here the engineer crews are assigned to individual boats and await the arrival of the infantry troops of the bridgehead force in their movement forward from initial assembly areas.

(3) The assault boats are brought to the final assembly areas by truck when the terrain, the road net, and the requirements of secrecy permit. Engineer troops unload the boats and distribute them along the foot routes to the river so that they can be readily picked up by the carrying parties.

Each boat is carried by the infantrymen who will cross in that boat.

(4) The principal requisites of the final assembly areas are—

(a) Accessibility to the trucks (or carrying parties) bringing up the assault boats.

(b) Concealment from hostile ground and aerial observation.

(c) Connection with, or proximity to, numerous easily followed foot routes to the river.

(d) Proximity to the actual crossing fronts.

(e) Distribution parallel to the front to allow both for crossing the river along the entire front and for proceeding directly and without delay to the embarkation points.

(f) Defilade or other protection from enemy rifle and artillery fire to be anticipated, even though secrecy may be preserved.

c. *Engineer boat crews.*—Two engineer soldiers are habitually assigned to each assault boat as crew; they guide and supervise the final approach to the river, the launching and loading of the boats, and all movement on the water.

■ 146. MOVEMENT TO FINAL ASSEMBLY AREAS.—a. *Plans and orders.*—Plans for the movement are made to insure as little delay as practicable in final assembly areas and no delay at the river bank. Detailed orders for the crossing are issued in the initial assembly areas for each infantry unit crossing in the first wave. Orders for the movement to the river cover the following points:

(1) Location of the final assembly position for each company, routes thereto, and hour of arrival of each infantry unit at its own final assembly area.

(2) Method of control of march to final assembly areas (guides, control points, etc.)

(3) Number of boats assigned to each unit and capacity of each.

(4) Where contact is to be made with the engineer in charge of boats for each infantry rifle company (either at the initial or final assembly area).

b. *Movement.*—(1) The movement to the final assembly area is made under control of infantry leaders. Upon arrival

at the final assembly area, engineer guides meet the infantry and conduct them to the boats. Subsequent movement to the river is under control of the engineer troops.

(2) Prior to leaving the initial assembly area, infantry units are divided into boat assignments. Tactical unity is maintained and adapted to the capacity of the boats.

(3) March dispositions are adopted which permit the troops to pick up their boats without change of formation. Orders or directions other than identification of units should not be necessary upon arrival at the final assembly area. The engineer guides lead units to the boats, the boats are picked up, and the unit moves on in silence.

■ 147. MOVEMENT FROM FINAL ASSEMBLY AREA TO RIVER.—*a.* The troops of the first assault wave carry their boats from the forward assembly area to the water under the direction of the engineer crew. The senior engineer crew member, who is in charge of the movement, follows close behind the boat, accompanied by the leader of the infantrymen assigned to the boat. The second engineer soldier acts as guide at the head of the group, near the bow of the boat.

b. The following general rules should be observed during the forward movement:

(1) Not more than ten men attempt to carry the boat at any one time, and not less than four are used for even a short carry.

(2) From the time of its departure from the final assembly area until the moment when the far river bank is reached, the forward movement of each assault boat should be generally uninterrupted. Momentary halts may be made en route to permit the changing of handholds and to avoid detection through movement when flares are dropped; such stops should be few and brief. A short pause must be made at the near edge of the water for the loading of passengers and weapons.

(3) Movement should be by the most direct practicable route to the crossing front; movements along the near bank, or in the water, and parallel to the shore are dangerous and are avoided.

(4) All suitable routes forward from the final assembly area are used; dispersion is essential—the bunching of columns on a few of the more easily traversed routes may be disastrous;

route markings and guides (furnished by the engineers) are indispensable.

(5) Movement from the various final assembly areas is timed by the engineer leaders so as to insure that all boats of the first wave are launched at approximately the same moment without delay by any boat at the bank of the river.

(6) The sounds of objects striking the sides or bottoms of the light, hollow hull resound loudly. Great care must be exercised to preserve silence. Nothing whatever should be placed in the boat during the hand carry. Rifles are slung on the shoulders away from the boat side and rifle butts or other equipment are not allowed to come into contact therewith. At the most convenient carrying height the clearance between the bottom of the boat and the ground is not great, and hence every precaution must be taken to avoid striking stumps, rocks, and other obstructions with the boat, and to prevent the bottom from being dropped or dragged on the ground.

■ 148. CROSSING THE RIVER.—*a. Launching and loading.*—(1) Immediately upon arrival at the river bank and without change in the carrying formation, the boat is carried bow first into the water until a depth sufficient to float the fully loaded boat is reached. Ammunition, machine guns, and any similar weapons or equipment are quietly placed in the boat. Then, and not until then, the passengers move aboard, keeping the boat in balance and avoiding the noise which would certainly be caused by striking any part of the boat with heavy footgear, weapons, or paddles. In shallow water, care must be exercised to prevent grounding the boat, which, with its attendant noise and delay, is particularly dangerous at this time. One engineer soldier stations himself with paddle at the bow; the other, who commands the boat, ascertains that the boat is in balance and that paddlers are properly distributed before climbing aboard himself at the stern and then giving the low command to shove off.

(2) Paddlers, with rifles slung, kneel on the one knee nearer the side of the boat, three paddlers to each side. Other passengers crouch low in the interior of the boat, holding their rifles upright against the floor.

(3) Occasionally, when the water is deep at the bank, the boat may be soundlessly lowered or slid from the bank to the water. The boat is then held parallel to the bank at bow and stern by the engineer crew and loaded directly from the bank.

b. Crossing the water.—(1) Each boat starts across as soon as loaded and proceeds as rapidly as possible by the most direct route to the opposite bank. No attempt should be made to maintain formation of any kind while on the water, although intervals between boats should be preserved to a certain extent. Neither should any effort be made to paddle somewhat upstream in order to counteract drift, unless the relative positions of landing and embarkation points and the nature of the current have led to prior and explicit orders to such effect. Under conditions of complete darkness or of heavy fog or smoke, the proper direction of the boat may be most readily maintained by use of the luminous compass.

(2) Paddlers hold their paddles away from the carrying rail along the gunwales to avoid the sounds of scraping or striking the hull. Splashing is avoided. Passengers do not move about. Firing from the boat is rarely attempted and at night is expressly prohibited.

c. Landing.—(1) *During darkness.*—The boatmen seek to ground the boat in shallow, quiet water and allow the infantrymen to disembark quietly. The infantry leader in the boat instructs his men how and when to get out. Unless the boat is under fire, silence is maintained. The leader orders his men to leave the boat and join him ashore at a designated place (tree, stump, bank, or other easily recognized point). Here, unless attacked or under direct fire, the men lie down and fix bayonets, the leader checks to see that all are there, and then selects an objective for his next movement. He organizes his men into a patrol formation and moves toward the point designated by the platoon or the company commander. If he encounters enemy parties, he attacks at once with the bayonet. He is careful to lead his patrol in such a manner as to avoid collision with friendly troops; senior leaders present organize the patrols to form a platoon organization as soon as possible.

(2) *During daylight.*—The landing is made under protection of combat aviation and artillery fires. Troops disembark rapidly; each boatload moves immediately to join its platoon leader. Once troops are ashore, the procedure is generally the same as in other battle situations.

■ 149. DEFENSE OF STREAM LINES.—The general procedure to be followed in defending stream lines is covered in FM 100-5.

a. The action of Infantry occupying a defensive position a few thousand yards in rear of a stream or held in readiness with outposts on the river line is in accordance with general procedure of defensive combat.

b. Infantry units defending near the river bank locate their principal holding garrisons opposite favorable crossing places and at points affording good observation over the valley. They are supported by local reserves held close in their rear prepared for immediate counterattack.

c. Defensive fires are prepared covering routes of approach and favorable assembly places on the far bank, the stream itself, likely routes of hostile advance on the near bank, and those points on the near bank offering the best observation over the stream. The principal close-in defensive fires will usually be placed on the river when the latter is an important obstacle.

d. The more likely crossing places are covered by several weapons. In addition to normal defensive organization, the defense may dam the stream at selected points, destroy or mine fords and approaches thereto, and obstruct good landing places. Wire is erected on the banks of the river and obstacles placed in the water. Mines may be placed at landing points. The valley may be interdicted with gas if it is deep and narrow.

e. Where the stream is an effective barrier to tanks, the best antitank defense is to prevent a crossing of the hostile Infantry and to locate antitank weapons for fire upon hostile tanks which may attempt to cross or ferry. Antitank guns should seek long fields of fire up and down stream as well as on approaches thereto, and particularly should cover salients in the river line. Most of the antitank weapons are initially held in readiness under cover until the approach of the tanks.

When hostile tanks are able to ford the stream or are amphibious, weapons are emplaced to take them under fire during the crossing.

f. Fundamentals of antiaircraft defense applicable to ordinary defensive situations generally apply. The defending forces at a river line are, however, disposed over a broader front and in greater depth. The greater part of the defending ground forces are held concentrated in mobile reserve. The important consideration in antiaircraft defense is the protection of the reserve while concentrated and during movement to the area of employment.

SECTION IV

VILLAGE FIGHTING

■ 150. MILITARY VALUE OF VILLAGES.—*a.* The military value of small towns and villages depends upon their size and topographical location, their construction, and their relation to the general situation. They control routes of communication, offer shelter from the elements, afford and facilitate certain services, and may provide some protection against mechanized elements and artillery fire. Towns and villages of flimsy or inflammable construction are easily destroyed by artillery and have a very transient influence on operations.

b. More solidly built villages, particularly those in which the houses are not widely spaced, have many of the military features of woods. They are easily defended and present a considerable obstacle to offensive action. The phases of action in the offensive and the distribution of troops in the defense are generally similar to those of combat in woods.

c. Cellars offer ready-made shelter and require careful organization of mopping-up operations by an attacker. Streets offer means of communication but constitute lanes readily swept by fire.

■ 151. DEFENSE OF VILLAGES.—*a.* *Location of main line of resistance.*—Houses on the edge of a building area will receive the most artillery fire initially. Hence the line of resistance usually is located in front of the village when houses offer relatively slight protection against artillery fire and do not materially obstruct the advance of tanks. If

houses are of extremely solid construction, defense along the forward edge may be advisable in early stages of campaign, when systematic destructive fires by masses of heavy artillery are not to be expected. Location of the main line of resistance in the interior of the village limits fire action of the defender except at close range and allows the enemy to gain a foothold within the village; it is, however, frequently advisable when the hostile artillery has excellent observation on the edge of the village or if the fires of strong hostile artillery are to be expected.

b. Organization for defense.—(1) Each combat unit is assigned to the defense of groups of adjacent houses. Main streets are unsuitable boundaries, and units should be definitely charged with their defense; each subordinate unit should cover an entrance to the village or a favorable route of hostile advance; each combat unit should hold out a reserve for immediate counterattack.

(2) In the interior of the village solidly built houses are organized to command the streets leading toward the center of the village. Trenches and barricades may be located at street intersections and open squares to exploit the field of fire.

(3) Reentrants of edges of the village offer particularly favorable emplacements for machine guns giving reciprocal support to adjacent elements. Other machine guns are sited in rear (from defense viewpoint) of the village to fire along the lateral edges and prevent their envelopment. A redoubt is located at the rear exit to insure all-around defense.

(4) Facilities for several tiers of fire are fully utilized, particularly in the interior defenses. Loopholes are cut in the walls of the houses, and firing emplacements are protected by sandbags inside the houses. If time permits, cellars are strengthened so as to resist artillery bombardments and additional exits from them are cut. Measures are taken for protection against gas. Protected communications are established to facilitate the exercise of command, walls of adjacent houses being pierced to make passageways when necessary. Wire is erected in front of the village and in open portions of the interior. Entrances of the village are barricaded and antitank mines are placed. A generous sup-

ply of tools, sandbags, and munitions, including grenades, is provided.

■ 152. ATTACK OF VILLAGES.—*a. General.*—(1) If practicable, the village is first enveloped and isolated by the capture of the near and lateral edges. Mopping up of the interior defenses is normally postponed until attacking troops are in position to prevent reinforcements from reaching the defenders. When the village forms part of a main defensive line, reduction of exterior defenses by troops which advance past the flanks of the village facilitates occupation of the lateral edges. Depending upon the situation, the outflanking action may be launched at the same time as the direct attack on the village or may precede it.

(2) When possible, a single unit makes the attack. This unit should be given a zone of action which includes favorable avenues for outflanking the village and the locations from which hostile weapons may place flanking fire in front of the village. The boundary between units should seldom pass along the edge of a village.

b. Outflanking action.—Attacking troops advance past the flanks of the village to a location from which they can place close-range fire upon the outflanked lateral edge, the rear defenses, and any hostile troops in rear of the village. Routes of approach extending to within 300 or 400 yards of the flank or rear of the locality are sought.

c. Capture of lateral edges.—The lateral edge of the village may be captured at the same time as the near edge when the situation and terrain favor a converging attack. Otherwise the exterior rifle units (charged with the capture of the lateral edges) reach positions adjacent to the near edge of the village about the same time as the interior unit (charged with the capture of the near edge). The exterior units then move forward along the lateral edges. Exterior attacking units are disposed in considerable depth and echeloned so as to converge upon the lateral edges of the village. Entrances to the village constitute successive objectives; as each is captured, a garrison is detailed to hold it.

d. Action of interior elements.—(1) The interior action is conducted with minimum forces. These troops first gain a foothold on the forward edge. The advance through the

village should be so organized as to maintain cohesion between units and consists of a series of bounds, usually in a single general direction. The principal cross streets constitute objectives near which halts are made to restore contact and cohesion. (See pars. 49 and 61c.)

(2) Mopping-up troops are usually divided into street and searching detachments and at times into detachments to advance along roofs. Street detachments advance in single file by small units on both sides of a street. The men on one side watch the windows, cellar gratings, and roofs on the other side. When resistance is encountered, the hostile fire is avoided while detachments seek to reach the enemy's flank and rear. It may be necessary to pierce passageways through the walls of houses and inclosures. Defenders of cellars are reduced by chemicals or incendiary grenades. Houses from which particularly stubborn resistance is offered may be demolished by close-range fire of cannon. Troops progressing along roofs clear out hostile snipers and machine guns and take hostile defenses under fire. Searching parties examine all houses. If night falls before the mopping-up can be completed, it is resumed at daybreak.

e. Fire support.—In the initial stages of the attack, artillery fire is directed against the near and lateral edges of the village, particularly the region of the entrance, and against the weapons outside the village which flank the locality. Groups of houses around central squares or important street crossings are also suitable targets. Tanks are used to neutralize hostile weapons located outside the village and at the edges of the village. They accompany the advance along the lateral edges. A strong infantry base of fire supports the initial attack. Fire support during the combat within the village is limited. Mortars and guns may be employed effectively against defenders of barricades; the artillery action during this period consists principally of incendiary fires and fires on hostile reserves in rear of the village.

PART THREE

LIAISON WITH OTHER ARMS

CHAPTER 1

ARTILLERY

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SECTION I

ROLE, MATÉRIEL, AND FIRES

■ 153. **ROLE, CHARACTERISTICS, AND ORGANIZATION.**—Artillery is an arm of relatively long-range combat. Fire constitutes its sole means of action. It contributes to the power of movement of the entire force through the fire support which it renders other arms; its own movement is to insure this support. The characteristics of artillery fire and the fundamentals governing the employment of field artillery are given in FM 100-5 and FM 6-20.

■ 154. **RELATIONS WITH INFANTRY.**—*a.* The employment of supporting artillery fire is regulated by the needs of the Infantry in the various phases of combat. The closest cooperation is required between Infantry and the divisional artillery.

b. The divisional artillery is distributed so that a part is assigned to the direct support of particular infantry units and the remainder held for general support of the division. Infantry commanders deal directly with the artillery assigned to their direct support or actually attached to their units. The infantry commander indicates the support needed; the artillery commander furnishes it, either by the employment of the means at his disposal or by request for the assistance of other artillery units, subject in the case of direct-support artillery to the instructions of higher commanders.

c. Artillery in general support does not maintain direct relations with the Infantry; it is kept informed concerning the situation and needs of the Infantry either through contact with the direct-support artillery or through normal command channels.

■ 155. DIVISIONAL ARTILLERY MATÉRIEL.—The divisional artillery usually comprises light guns (75-mm) and howitzers (105-mm or 155-mm). The 75-mm or 105-mm howitzers may be used to supplement or replace the 75-mm guns. The artillery of the division may be reinforced by other artillery units armed with generally similar matériel.

a. The 75-mm guns are usually used for direct support; they have a relatively flat trajectory and rapid rate of fire. Depending upon the type of gun and shell used, their extreme range varies from 8,800 yards to more than 13,000 yards. The effective range is somewhat less. Fires are not placed close to friendly Infantry when the range from the piece to the target is greater than three-fourths of the maximum range. Difficulty of observation and communication may still further reduce the range at which fires in direct support of the Infantry may be delivered. The usual projectiles are high explosives (HE) shell; they are highly effective against personnel in the open or slightly sheltered; against a well-intrenched enemy their effect is principally one of neutralization. Fuzes provide for time or percussion bursts. Time shell, which burst in the air (15 yards is the normal height), spray fragments covering effectively an area on the ground approximately 30 yards wide and 5 yards deep. The radius of casualty effect of a few large fragments may be about 150 yards. Shell which burst on impact cover approximately equivalent areas. Ricochet bursts, properly controlled, are very effective.

b. The 105-mm and 155-mm howitzers have curved trajectory and a less rapid rate of fire. Their extreme range is slightly in excess of 12,000 yards. Fires are not normally placed near friendly Infantry at ranges in excess of 8,000 yards from the observation post nor at ranges in excess of three-fourths of the maximum range from the pieces for the ammunition used.

c. Classes of projectiles are generally similar to those of the 75-mm guns, but the 155-mm shell in particular have a much greater destructive effect against hostile field works and sheltered personnel.

d. Both guns and howitzers employ chemical ammunition (gas and smoke).

■ 156. SAFETY LIMITS.—*a.* Because of dispersion and the effective radius of shell fragments, there is a zone in front of the supported Infantry in which the artillery cannot fire without danger to the Infantry. Uncertainty as to the location of the foremost Infantry may cause the artillery to transfer its fire to distant targets.

b. Under the most favorable firing conditions, unsheltered friendly troops should be at least 200 yards from the fire of 75-mm guns. Under the same conditions, the minimum distance should be 350 yards in the case of the 105-mm howitzer and 500 yards for the 155-mm howitzer. A greater safety zone will be frequently required. Increase in the safety limit is necessary when the artillery has not been able to adjust its fire, when the range is long, and when the terrain is covered with trees and houses or slopes toward the enemy. Under such conditions the minimum distance may be as great as 600 yards for the 75-mm gun, 500 yards for the 105-mm howitzer, and 800 yards for the 155-mm howitzer. The safety limit may be smaller when the Infantry is sheltered from large shell fragments.

c. In offensive situations, Infantry can close on supporting artillery fire to the extent it considers to be warranted by the situation. Under favorable conditions, it may close to within 100 yards of the fire of 75-mm guns when preparing to assault.

■ 157. PREPARATION AND ADJUSTMENT OF FIRE.—*a.* The accuracy and effectiveness of artillery fire are markedly affected by the conditions under which firing data for the targets are determined and whether or not adjustment can be made to correct the initial data. Adjustment is made for two reasons: to bring fire on the targets and to determine correction by which fire may be transferred to other targets.

b. Preparation of fire is made with instruments or from firing charts. Approximate firing data are prepared with instruments (battery commander's telescope, aiming circle, prismatic compass, range finder, etc.) when time or facilities for a more accurate preparation are lacking. Data prepared with instruments must be corrected by adjustment.

(1) A firing chart shows accurately to known scale the relative positions of batteries, targets, base points, check points, check concentrations, and other data pertaining to the preparation of fire. A base point is a well-defined point, accurately located on the firing chart, and used as an origin for shifting guns in direction and range. It may also be used as a check point. A check point is usually a visible point on which the artillery registers. Adjustment of fire upon a check point or upon a base point is referred to as registration. Check concentrations are located on selected points (conspicuous houses or road junctions) throughout the probable zone of fire. They serve as a special type of reference point and are used to facilitate the checking and shifting of fires. They are plotted on the firing chart, numbered, and made known to observers, liaison officers, and infantry commanders.

(2) The basis of a firing chart may be a gridded, contoured map of suitable scale, a grid sheet, an air photo, or a photo-map. Maps and air photos are used to supplement each other. When no map or map substitute of suitable accuracy and scale is available, a firing chart can be developed from topographic surveys executed by the artillery. Regardless of the map available, field artillery units make such surveys whenever there is sufficient time; rapidity and accuracy in the maneuvering of fire increase as the surveys become more complete.

(3) Firing charts are prepared, primarily, in order that after adjustment of fire on a few points fire may be readily and effectively transferred to targets on which there has been no adjustment and on which observation may be impossible. (Fire which cannot be observed must always be prepared from a firing chart.)

c. Methodical preparation and observed adjustment of fire give the best technical results; in practice the situation may not permit this procedure. Technical and tactical considera-

tions are often conflicting. Preliminary adjustment or registration may result in a partial loss of surprise; however, lack of adjustment reduces the accuracy of artillery fire and requires increased ammunition expenditure to obtain a given result. The estimated relative effectiveness of fire is as follows:

	<i>Percent</i>
Direct observation.....	100
Transfer of fire (involving registration on another target).....	75
Map firing (map data corrected).....	50.

■ 158. EFFECT OF FIRE ON PERSONNEL.—*a.* The moral and physical effect of artillery fire is increased by the employment of short and violent bombardments; the first effective bursts in an area usually inflict the majority of casualties suffered by the troops under fire. Regardless of casualty effect, artillery fire delivered in an area occupied by unprotected troops will cause them to scatter and lessen their effectiveness until they determine that fire has lifted to another area.

b. Neutralization of an area in which hostile troops have only slight protection may be maintained by recurrent fires of shorter duration than those required to establish initial neutralization. However, continuous fires are required to maintain neutralization over good troops adequately protected.

■ 159. STANDARD AREAS.—*a.* Employment of standard areas permits a uniform and expeditious system of assigning artillery concentrations. These areas are indicated as circles of 100, 200, 300, and 400 yards in diameter, although the actual pattern of fire approximates a rectangle with the small dimension equal to the diameter of the circle. The area for a given target depends upon the matériel, size of the target, accuracy with which its location is known, and the probability of the fire being checked or corrected by observation. The 200-yard circle is generally used for neutralization fire by a 75-mm gun battery using unobserved fire; the 100-yard circle, for observed fire on a suitable target.

b. Standard areas permit standard systems for preparation of fire and standard ammunition allotments. Time permitting, data are prepared for fire on areas most likely to become targets.

■ 160. NEUTRALIZATION CAPABILITIES.—The capability of an artillery unit to neutralize an area depends upon the matériel used, time available, method of fire, size of the area, and kind of target.

a. As an approximate measure of the artillery requirement for a mission of neutralization, it may be accepted that a 75-mm gun battery using high explosive shell can establish neutralization over a 200-yard area in 5 minutes by the expenditure of 112 rounds against average troops without cover or with very slight protection. Recurrent fires are relied upon for maintenance of neutralization; for such maintenance a battery fires 56 rounds in approximately 3 minutes. Three minutes are allowed for shifting fire from one area to another; for example, 25 minutes are required for a battery to neutralize two areas successively and then execute one subsequent fire on each area to maintain neutralization. This period does not include preparation and registration. The total hourly fire for a battery should not exceed about 720 rounds.

b. A battery of 105-mm howitzers establishes neutralization of a 200-yard circle in approximately the same time as a 75-mm gun battery. It fires somewhat fewer rounds. The use of 155-mm shell makes possible the neutralization of a 200-yard area in less time and with fewer rounds; however, the 155-mm battery is normally assigned a 300-yard area which it neutralizes in 7 minutes.

c. Much denser fires than those indicated are required to neutralize seasoned troops having good protection.

■ 161. WIRE DESTRUCTION.—A considerable expenditure of ammunition is required for artillery if employed for wire destruction. Depending upon the range and conditions of observation, from 600 to 1,200 rounds of 75-mm ammunition are required to cut a breach 30 yards wide through wire not exceeding 30 yards in depth. From 350 to 700 rounds of 155-mm howitzer ammunition (or a somewhat higher figure for the 105-mm howitzers) are required to cut a similar breach. Wire destruction or breaching is normally done by battery.

SECTION II

ARTILLERY IN THE OFFENSIVE

■ 162. MISSIONS OF DIVISIONAL ARTILLERY.—*a.* The divisional artillery participates in artillery preparation and furnishes direct and general support of the attack. All of the divisional artillery must be capable of concentrating its fire on a critical area at the will of the division commander.

b. The superior commander determines whether there is to be an artillery preparation and its kind and duration. He considers the questions of tactical surprise, whether the hostile dispositions and ground organization are known in sufficient detail to permit intelligent planning, the extent to which tanks are to support the attack, and the amount of artillery ammunition available. The purpose and general nature of an artillery preparation are indicated in FM 100-5. The Infantry is particularly concerned by arrangements for the neutralization or destruction of hostile automatic weapons, antitank guns and artillery, the obscuring of hostile observation, and the breaching of hostile accessory defenses.

■ 163. DIRECT SUPPORT.—*a. General.*—Direct support artillery successively neutralizes resistances most threatening to the leading attack elements.

b. Successive concentrations in support of Infantry.—Concentrations of supporting artillery fires on successive targets will be the usual form of support of Infantry. This method, known as "successive concentrations", masses fires in desired localities; its flexibility permits artillery action to be adapted to that of the Infantry. Fires are placed in successive regions where the enemy must be neutralized, beginning with the nearest areas. Neutralization is maintained until the progress of the advancing Infantry requires the artillery to lift its fire to more distant objectives. The nature of the target determines whether continuous bombardment is required to maintain neutralization. Establishment of neutralization may be followed by recurrent fires or by a period of continuous but less intense fire, bombardment being resumed as the Infantry draws near. Such a maneuver of fire enables the artillery to neutralize a larger number of

targets. Recurrent fire on a target during the attack must be executed at such distance in front of the Infantry as to obviate the possibility of occupation of the target area by the advancing Infantry during an interval between fires. A large safety margin must always be allowed. In particular, any bringing back of fire from a distant target to a nearer objective from which it had previously been lifted is fraught with danger to the Infantry. Such procedure is usually limited to periods when the Infantry is halted and its position and plans are known (pauses on objectives, artillery preparations, etc.).

c. *Rolling barrage.*—The rolling barrage is used in exceptional situations (initial stages of attacks against fortified positions, attack beginning with an assault) and is, in general, applicable only to short phases of an attack. It consists of dense fires moved ahead of the Infantry at a predetermined rate by very short lifts, these fires in turn being preceded by less dense concentrations. The rolling barrage insures the placing of fire on all hostile defense elements in the advance zone but is extremely prodigal of ammunition since it also fires on areas not occupied by the enemy and areas of little tactical importance. It lacks flexibility and imposes rigidity on infantry dispositions; undominated resistances frequently break its contact with the Infantry; and it requires tremendous artillery strength. When it is impracticable to fire a rolling barrage over the entire front, the barrage may be fired on certain portions thereof and the remainder of the front covered by concentrations.

d. *When the infantry attack is preceded by tanks.*—When friendly tanks are present on the battlefield during an infantry attack, artillery fires in support of the attacking Infantry are greatly curtailed. Where the friendly tank attack immediately precedes the infantry attack artillery fires on the foremost enemy defenses are usually limited to preparation fires if such are authorized. Fires after the tank attack is launched are placed on rear areas and are coordinated with plans for tank movement. The infantry attacking elements rely on the support of their own heavy weapons and the effect of the tank action against hostile defenses.

■ 164. GENERAL SUPPORT.—*a.* The fires of general support artillery usually deepen or reinforce the fires in direct support. They are often used to attack targets beyond the capabilities of the latter. When the leading elements are Infantry, general support fires cover the more distant areas from which the enemy can observe the attack, fire effectively with antitank or automatic weapons, or assemble troops for counterattack. When tanks lead the attack, the general support fires, except for brief periods, consist largely of action against distant target areas.

b. General support artillery likewise executes such missions against the hostile artillery (counterbattery missions) and fires to deny the enemy use of points or areas (interdiction missions) which are required of the divisional artillery.

■ 165. METHODS OF EFFECTING COORDINATION.—*a. General.*—Coordination of artillery fire with the advance of the Infantry is essential to the success of an attack. Fires may be executed and lifted on artillery observation (ground or air), on call or signal from the Infantry, by time schedule, or by a combination of these methods.

b. Artillery observation.—Artillery observation is to be regarded as absolutely essential whenever it is possible to secure it, either as a primary means of executing or lifting fires or as a supplement to other methods.

c. Call or signal from the Infantry.—(1) Regulation of fires by call or signal from the Infantry, in conjunction with artillery observation, is suited to rapidly moving situations and those in which there is doubt as to the location of hostile elements (preliminary operations against shallow or scattered resistance; latter phases of a successful attack when the Infantry has penetrated deeply into the hostile position; attacks by small forces which have considerable room to maneuver). Fires regulated by call or signal from the Infantry may either be prearranged fires or fires on targets indicated only during the attack (targets of opportunity).

(2) When time permits, fires to be delivered on call are prepared for likely locations of hostile troops; the Infantry then calls for such of these fires as are required to meet developments of the combat. Duration of these fires may be prearranged, or the lifts may also be made on call.

(3) When the location of the enemy is known, groups of prearranged concentrations may be fired in a definite sequence; each lift to the next target is made at the request of the Infantry. Normally only two or three lifts are provided; continuation of this procedure over great depth involves considerable ammunition expenditure and danger of confusion. It may be applied to strong, located resistances, when visibility and other conditions permit.

(4) On asking for nonprearranged fires, the infantry request should include—

Accurate location of the target.

Description of the kind of target and its dimensions.

Location and contemplated maneuver of friendly troops near the target.

Duration of the fire.

(5) Opening and ceasing fire can usually be coordinated by specifying its duration. A standard duration for all such fires may be arranged prior to the attack; the Infantry indicates a different duration when necessary. In special cases the Infantry may specify one of the following:

Duration and exact hour of opening.

Duration, opening of fire to be upon a prearranged signal.

Exact or latest hour for ceasing fire.

Time of opening fire, cessation being on signal.

(6) Infantry which requests artillery fire must assume that it will be delivered and must not enter the concentration area until the fire has been completed. When the artillery cannot comply with the request before expiration of the period, it does not fire. The Infantry then is free to advance if the situation has changed, or to renew the request, indicating a new time limit.

d. Time schedule.—(1) Fires may be lifted and advanced on a time schedule based on the estimated rate of advance of the Infantry. This method of regulating the delivery of fires requires time for preparation and accurate information concerning at least part of the hostile dispositions. Its employment in rapidly moving situations is limited; when favored by

conditions it may be used for one or two groups of fires. The time schedule will be used more often in operations such as the early stages of attacks against hostile positions. It is particularly adapted to conditions of poor visibility and to those situations in which interruption or failure of communication can be foreseen. Dry, dusty terrain and the probability of grass or brush fires being started may lead to its employment. In particular, reinforcement of the organic divisional artillery and engagement of large forces on relatively narrow fronts can be expected to create conditions of poor visibility, and in such cases the time table, with provision for dealing with discrepancies between the actual and expected advance of the Infantry, normally becomes the principal basis for lifting fires.

(2) Only minor changes in the time schedule are practicable during the attack; when extensive revision is required, abandonment of the schedule in force in favor of other methods or a new schedule will usually be necessary. The artillery is prepared, on call from the Infantry, to advance or retard the timing of part or all of the fires, to group fires to cover targets offering more resistance than anticipated, and to repeat or omit any fire or group of fires. Likewise, fires on targets of opportunity or concentrations planned for execution on call or signal can be substituted during the attack for fires included in the time schedule; when they are completed, firing according to the schedule is resumed, unless modification is requested.

(3) Schedule fires are planned in independent series to avoid tying the attack to a time schedule over a long period. Each series corresponds to a maneuver phase terminated by the capture of an objective. Execution of a new series of fires is usually begun on call from the Infantry. When the Infantry pauses on an objective the artillery may repeat the last fires in the old series on call.

(4) The general rate of movement of artillery fire corresponds to the average rate of advance of the Infantry between objectives. Fires are lifted for varied distances, depending on the terrain and the composition of the leading attacking elements. In the support of Infantry, artillery fire is usually

displaced by lifts ranging in depth from 100 to 500 yards; when tanks lead the attack, lifts of less than 500 yards are exceptional.

(5) The distance between the artillery fire and the attacking elements varies constantly. The artillery may keep fire of constant or varying intensity on one target until the progress of the attack requires it to lift, or it may neutralize a selected area, then attack other targets, and finally resume fire on the first area shortly before the Infantry approaches it. The distance between lifts, the kind of targets, and the location of attacking elements are the determining factors. Schedule fires must be so timed that—

(a) Neutralization is maintained on dangerous areas during the period in which fire from those areas would most endanger the attacking Infantry; and

(b) They lift to the next target when the Infantry closes up to them.

(6) Between objectives, the time schedule may be based upon an expected rate of advance of as much as 100 yards in 2 minutes over terrain devoid of natural obstacles when the enemy is weak or his position only slightly organized. Against strong resistance over terrain torn up by artillery fire, a rate of 100 yards in 3 or 4 minutes is normal. A slower rate is to be expected when ascending rocky slopes. Schedule fires for the support of tanks are usually based upon a contemplated rate of advance of 200 or 300 yards a minute.

e. Repetition of fires.—Repetition of artillery fires should rarely be requested on targets from which they have been lifted. Infantry commanders should make such requests only when the location of the troops is known and when subordinate elements have been informed of the request.

f. Targets of opportunity.—In case an important target of opportunity presents itself to an artillery unit which is engaged on prearranged fire missions, the artillery commander, in the absence of instructions, decides whether to continue his mission or attack the new target. Ordinarily no artillery units are designated exclusively for fire on targets of opportunity.

■ 166. PLANNING SUPPORTING FIRES.—*a. General.*—(1) The method of artillery support is influenced by many factors, which include—

(a) Enemy situation—whether in movement, in position, or intrenched.

(b) Enemy dispositions:

1. Observation and ground organization.

2. Kind of resistance expected and suspected location of reserves.

(c) Contemplated maneuver of the supported Infantry.

(d) Distance the Infantry must advance to reach the enemy.

(e) Available covered approaches.

(f) Whether supported by tanks.

(g) Assistance which higher or adjacent artillery units will furnish or require.

(h) Conditions under which fire is to be delivered (observation, adjustment, time, and ammunition available).

(2) The general guides of planning supporting fires in an attack are as follows:

(a) Each echelon of command lightens the task of subordinate elements by leaving to them, to the extent compatible with the situation, only the fires which interest them directly.

(b) Each echelon, within the limits of available time, prescribes such fires as are necessary to coordinate the action of subordinate units.

(c) An echelon in direct support confers with the supported unit and reaches an agreement as to the support to be given.

(d) Each echelon prepares the fires necessary to deal with its own immediate problem, being guided by the amount of time available.

b. Rapidly moving situations.—(1) The division attack order gives the general plan, the missions of infantry units, and the general artillery missions. It designates artillery units in support of particular infantry units. The plans and orders of infantry regimental commanders give additional information required by the direct support artillery, including

the number of attacking battalions, their zones of action, location of infantry regimental and battalion commanders, regions where the artillery should be prepared to fire, and method of calling for and lifting fires. When practicable, the infantry commander indicates where the artillery should place its fires at the start of the attack.

(2) Based on the foregoing information and usually after conference with commanders of supported infantry units, artillery commanders adopt dispositions to insure observed fire on targets as they develop and permit the artillery to furnish continuous support during the advance. Their arrangements include—

(a) Assignment of general areas (normal zones) which the various subordinate artillery units are to observe and where they are to attack such targets as can be located. The normal zone of an artillery unit in direct support is usually the zone of action of the supported infantry unit. Within an artillery battalion, normal zones are subdivisions of the zone of the infantry unit which the battalion supports.

(b) Sending of liaison detachments to attacking infantry battalions.

(c) Agreement with supported infantry commanders as to the support to be given by the artillery and signals for lifting artillery fires, if these are not already prescribed.

(d) Furnishing all concerned with overlays or maps showing the location of check concentrations and any prearranged fires in order to facilitate designation of targets by infantry commanders, liaison officers, and air and artillery observers. (Predetermined fire missions are usually limited to areas known to be held by the enemy; a few concentrations to be fired on call may be prepared to cover suspected areas.)

(e) Provision for reconnaissance, artillery displacement, and limitation of artillery ammunition expenditures.

c. Prearrangement of fires.—(1) Prearranged fires are employed whenever the conditions of the attack permit. Infantry and artillery commanders confer with regard to target areas to be taken under fire and the order in which artillery fires are to be delivered. Such of the following points as are pertinent to the contemplated operation are considered: the

infantry situation and plan of attack; location of its foremost elements and dispositions and plan of employment of infantry heavy weapons; tactical localities of importance and targets which the Infantry desires the artillery to attack; details of schedule fires; plans for fires to be fired only on call; localities where counterattacks are likely to develop; signals to be employed; artillery observation points that must be seized during the advance.

(2) Prior to the conference, the infantry commander makes an estimate of the situation and formulates a tentative plan as to the general location, time, duration, and order of importance of artillery fires to be requested. He notes on a map the areas on which artillery fire is desired (simultaneously or successively), indicates the infantry maneuver and its successive phases, and whenever practicable prepares a rough estimate as to the time when the attacking infantry units will reach important terrain features (objectives), and the approximate duration of any halt contemplated during or at the end of a maneuver phase. From this information the artillery commander determines the number of standard area targets to be taken under fire during a particular maneuver phase, the degree of neutralization possible (in terms of rounds of ammunition) in the time estimated, and the distribution of fire missions to subordinate units.

(3) Upon arrival of the artillery commander, the infantry commander presents his tentative plans and requests for fire. The artillery commander examines the requests to see that they are in accordance with the capabilities of the artillery. If the powers of the artillery are not fully exploited, the artillery commander suggests additional fires; if the artillery is unable to furnish sufficient fire to meet the requests, the infantry commander, with the assistance of the artillery commander, determines which of the fires available will contribute most to the success of the infantry operation. Details of the infantry plan sometimes must be changed to accord with the capabilities of the available artillery.

(4) The final infantry plan serves as the basis for artillery plans and orders. Artillery procedure to put prearranged fires into effect includes—

(a) Location on firing chart of standard concentration areas of sufficient size to cover the selected target areas.

(b) Decision as to assignment of standard areas to particular batteries as fire missions.

(c) Preparation and transmission to batteries of overlays showing concentrations. When fires are to be delivered on a time schedule, graphs are usually prepared to show the missions planned for fire at a given time and the batteries which are to fire them. Copies of these documents are sent to liaison officers, air observers, and higher commanders.

(5) Arrangements for prearranged fires are normally made by infantry regimental commanders, except in tank units; if battalion commanders later desire modifications or additions, they make request through their regimental commanders.

SECTION III

SUPPORT OF THE DEFENSE

■ 167. PURPOSE.—In general, artillery fire in the defense is designed to delay the attacker and inflict casualties upon him as he approaches the defensive position; to prevent or dislocate a coordinated attack; to assist the Infantry in repelling any attack which the enemy succeeds in launching; and to place fires on his reserves and supporting troops.

■ 168. ARRANGEMENTS FOR SUPPORT.—The method of arranging artillery support of Infantry in the defense is similar to that in offensive situations (par. 165c); the infantry and artillery commanders confer and agree upon areas to be covered, the duration and priority of fires, and the signals calling for them. To take advantage of its flexibility of fire, the artillery is kept under centralized control to a greater degree than in the attack.

■ 169. SEQUENCE OF ARRANGING FIRES.—Defensive fires are usually prepared in the following sequence:

a. Standing barrages for the close defense of the main line of resistance.

b. Defensive concentrations covering avenues of approach to the main line of resistance.

c. Other defensive fires beyond the main line of resistance.

d. Counterpreparation fires.

e. Fires within the battle position to limit hostile penetration or envelopment.

f. Fires in support of counterattacks.

g. Fires covering a possible withdrawal.

■ 170. COORDINATION.—Artillery fire can adequately cover only a small portion of the front of a supported unit at one time, unless the organic artillery has been strongly reinforced. In principle, the artillery prepares close-in defensive fires to cover portions of the terrain where infantry flat-trajectory fire is least effective. Plans for defensive fires also provide for concentrations of artillery fire on critical portions of the front. The normal barrage for the close defense of the main line of resistance requires one battery for each 200 yards covered; the duration of fire is from 3 to 5 minutes, renewed in case of necessity. The artillery executes observed fire against any suitable targets seen.

SECTION IV

INFANTRY-ARTILLERY LIAISON

■ 171. GENERAL.—Close contact between the Infantry and the artillery makes possible timely transmission of requests for fire and gives the artillery the intimate knowledge of the infantry situation which it requires for effective performance of its mission. Maintenance of communication (except radio) with the supported unit is an artillery responsibility.

■ 172. COMMAND LIAISON.—The artillery commander maintains liaison with the commander of the supported infantry unit by personal contact whenever practicable, otherwise through a staff representative. Infantry and artillery command posts are located in close proximity to one another. When this is impracticable, wire connection is made. Frequent visits by artillery commanders and staff officers to infantry command posts, before and during combat, are essential.

■ 173. LIAISON WITH INFANTRY BATTALIONS.—*a. Liaison section.*—An artillery liaison officer with a small detachment is

sent to front-line infantry battalions (exceptionally to companies) as soon as the essential elements of the artillery plan are known. The liaison officer is the artillery adviser of the infantry battalion commander and the representative of the artillery commander; he may also be a forward observer for the adjustment of artillery fire.

b. Information furnished infantry commander.—The liaison officer furnishes the infantry commander information concerning where, when, and in what volume the artillery can fire. He identifies prearranged fires on the ground. During the action he furnishes information concerning the possibility of obtaining additional fire.

c. Information furnished artillery commander.—The liaison officer keeps the artillery commander informed of the location of the forward elements of the unit supported, its tactical situation, the desires of the supported troops for artillery fire, the effect of friendly and hostile artillery fire, prospective battery positions, observation posts, and routes of advance.

d. Location of liaison officer.—The liaison officer maintains close contact with the infantry commander; both should be able to observe the action of the infantry. Wire from the artillery battalion is laid to the artillery liaison officer, who during combat is with the infantry battalion commander. Artillery communications should not be used for infantry traffic except in an emergency. The infantry battalion commander may communicate with his regimental commander through the artillery battalion switchboard, which has a wire line, in most situations, direct to the infantry regimental command post.

■ 174. REQUESTS FOR ARTILLERY FIRE.—The following table indicates how requests are made for artillery fire. When an entire artillery battalion or more than one battalion is assigned to the support of a single infantry battalion, the commander of the infantry battalion may be authorized to prearrange fires; request that schedule fires be advanced or delayed; and initiate the execution of a new series of prearranged fires.

Nature of request	By whom made	To whom made
Prearrangement of fires....	Infantry regimental commander generally.	Commander of artillery in direct support.
Call for execution of prearranged fires.	Infantry battalion commander unless otherwise ordered.	Artillery liaison officer.
Signal for execution of prearranged fires.	Infantry battalion commander usually. Company commander in defense if specifically authorized.	
To delay or advance the time of delivery of schedule fires.	Infantry regimental commander, usually on request of a battalion commander.	Commander of artillery in direct support.
Request for fire on areas not covered by prearranged fires,	Infantry company commander; infantry battalion commander.	Infantry battalion commander; artillery liaison officer.
To initiate the execution of a new series of prearranged fires.	Infantry regimental commander.	Commander of artillery in direct support.

b. Request by a battalion commander for fire on points outside the battalion zone of action are usually sent to the infantry regimental commander, who transmits them to the artillery only if the fire will not interfere with other units.

■ 175. ARTILLERY ACTION ON REQUESTS.—a. In all infantry requests for fire during combat, the artillery commander notifies the infantry commander as soon as possible concerning the action to be taken.

b. When the artillery is firing on a time schedule and all batteries are busy, compliance with a request by an infantry battalion commander for fire on a target of opportunity is usually effected by transferring fire from a target in the zone of the battalion making the request. The artillery commander will not transfer fire from without the zone of the battalion supported unless the infantry regimental commander

approves, or previously has indicated that the unit making the request is to be given priority in artillery support (main effort). In requesting fire, therefore, infantry battalion commanders should specify the old targets on which continuation of fire is essential.

c. The commander of the direct support artillery may apply for assistance by general support artillery or other artillery units when his own resources are insufficient to comply with requests. Appreciable delay is usually involved when attempts are made to procure support from such sources.

■ 176. ATTACHED ARTILLERY.—When artillery units are attached to infantry units, the same general procedure is followed except that the infantry commander makes the final decision as to where the artillery fires will be placed, after considering the recommendations of the artillery commander.

■ 177. USE OF SIGNALS.—To prevent misunderstandings the number of pyrotechnic signals pertaining to fire and their meanings should be held to the minimum. It will usually be necessary to reach an agreement with the artillery as to the locations from which signals are to be fired. For details in the use of pyrotechnic signals see FM 24-5.

■ 178. SMALL AND CLOSE TARGETS.—In general, the artillery is not called upon to deal with small point targets that can be dealt with by infantry weapons. When strong resistance develops over a large area near the Infantry the point targets close to the Infantry are engaged by infantry supporting weapons, and the rest of the area is assigned to the artillery.

■ 179. DESIGNATION OF TARGETS.—a. *Importance.*—Precise designation of targets on which the Infantry desires artillery fire is of vital importance; inaccurate designation results in ineffective fire or requires the artillery to neglect other missions and neutralize an unnecessarily large area by a great expenditure of ammunition.

b. *Prearranged fires.*—Designation of targets for prearranged fires is relatively simple because the infantry commander and artillery representative are in direct contact. Suitable maps, overlays, or sketches are ordinarily used with identification of visible targets (or reference points by which

they can be located) on the ground. Without maps, all targets must be pointed out in this manner.

c. By small units during combat.—(1) After the commander of a company or other small unit has located hostile resistance on which he requires fire, wording and transmission of the information to higher authority in such form as to avoid error require great care. Use of marked maps or photographs, overlays, or rough sketches is desirable. Whenever possible, the messenger should be able to identify the target (or reference point) on the ground.

(2) Map coordinates (or an overlay) are used when practicable. The size of the target should be indicated, e. g., by giving the central point and the extent of the front or diameter of the area. The designation should be supplemented by indicating the relation of the target to an unmistakable point on the terrain near the target (reference point).

(3) Lacking maps, the company commander may indicate the target by giving its magnetic azimuth and estimated distance from his position, when his position can be readily seen or accurately identified. (Example: Deployed Infantry on front of 200 yards; center 500 yards from red brick house, azimuth 54°.) He may give the distance and direction of the target from an easily recognizable reference point when the distance is small enough to permit a reasonably accurate estimate. (Example: Machine-gun nest 100 yards in diameter; center 150 yards north of water tank.) A method frequently applicable is to give (usually on a sketch) the magnetic azimuth and estimated distance both to the target and to a distinct reference point. Accurate results depend on accuracy of estimated distances.

d. Action of battalion commander.—Errors in target designation by infantry units under fire are inevitable; in transmitting such requests, infantry battalion commanders and liaison officers use all possible means (observers, personal observation) to verify and complete the target designation: Indication of known points close to the target or reference to prearranged fires materially aids the artillery.

e. Action of liaison officer.—The liaison officer uses the information furnished by the Infantry, supplemented by his own observation, to determine the location of the target with

reference to a known point already plotted on the artillery firing chart. Since he is usually in a forward position, he will frequently be called upon to observe fire.

■ 180. INFANTRY PROTECTING ARTILLERY.—Close-range protection of artillery is afforded mainly by troops deployed in its front. Special infantry supports may be detailed to protect artillery on an exposed flank or behind a lightly held front. These supports receive general instructions from the Artillery but are responsible for the dispositions necessary to accomplish the assigned mission.

CHAPTER 2

AVIATION

■ 181. **TYPES OF MILITARY AVIATION.**—In accordance with the purpose for which aircraft are ordinarily employed, military aviation is divided as follows: combat; reconnaissance and observation and liaison; transport; and training and special purpose aviation.

a. Combat aviation.—Combat aviation is organized, equipped, and trained to engage in offensive and defensive air operations by air attack and air fighting. Corresponding to the means with which equipped, combat aviation is organized into bombardment and pursuit units. Medium and long-range reconnaissance is performed by bombardment types of aircraft.

b. Reconnaissance and observation and liaison aviation.—Reconnaissance and observation and liaison aviation is organized, equipped, and trained to conduct air reconnaissance, observe fire, gain military information by visual and photographic means, and transmit instructions and reports in accordance with the orders of supported units to which organically assigned or attached. It includes both heavier-than-air aircraft and balloons. Although armed for their own protection, they are not suitable for air attack or air fighting.

c. Transport aviation.—Transport aviation is organized, equipped, and trained to carry personnel and cargo. It is indispensable for facilitating the operations of Air Corps units through the rapid transport of personnel and essential items of supply, and is particularly suitable for increasing the mobility of foot troops in an emergency.

d. Training and special purpose aviation.—Training and special purpose aviation is organized, equipped, and trained especially for the training of flying personnel and for other special purposes not connected with air operations; it is neither suited nor intended for combat use.

■ 182. **SUPPORT OF INFANTRY.**—Aviation affords Infantry both direct and indirect support. Indirect support includes the

destruction of hostile aircraft and the attack of rear area ground objectives. Direct support consists of observation, transmission of information, and, when directed by higher authority, attack of infantry objectives. Observation tasks include distant, close, and battle reconnaissance by both visual and photographic means.

■ 183. **ATTACKS AGAINST HOSTILE FRONT-LINE ELEMENTS.**—*a.* When aviation is used for direct support, it furnishes a powerful close fire support element to an infantry attack. Attacking airplanes by bombing and machine gunning hostile front-line troops supplement artillery fires in support of the attacking Infantry. Aviation attack can be maintained by successive waves of attacking airplanes, and enables the Infantry to exploit a successful assault without waiting for forward displacement of artillery units. A successful infantry attack, supported by combat aviation, presses forward into enemy critical areas and prevents the hostile reserves from reestablishing resistance. Infantry commanders utilize reserves to maintain the impetus of the attack and avoid undue reorganization delays.

b. Attacks against battlefield objectives are coordinated with the action of the Infantry. Infantry commanders notify the supporting aviation of the location of targets on which air fire is desired. On initiative and completion of the air attack, the aviation notifies the advance elements of the supported Infantry by radio or easily recognizable visual signals.

c. The attack of hostile ground troops by combat aviation during the battle is exploited promptly by the Infantry. Attack by aircraft on the hostile lines usually results in a lull in the hostile fire, particularly in that directed against the attacking Infantry. Attempts by advanced hostile elements to reply to the fire of the airplanes usually result in disclosing their location to the attacking Infantry. The latter redoubles its own fire to protect the airplanes and punish incautious exposure. It takes advantage of the opportunity to reach assaulting distance. The assault is launched as soon as possible after the end of the attack by the airplanes.

d. For details of the organization and employment of aviation, see FM 1-5, FM 1-10, and FM 1-15.

■ 184. RECONNAISSANCE AND OBSERVATION AND LIAISON AVIATION.—Reconnaissance and observation and liaison aviation is generally the only type of aviation which usually operates directly with the Infantry. This aviation is equipped, organized, and trained to observe and report upon all activities visible from aircraft and of interest to a military commander. It observes and reports on the composition, disposition, and activities of both enemy and friendly ground, air, and naval forces and installations. It assists the artillery by locating suitable targets, and, when practicable, may assist in adjusting fire. In addition, it is one of the liaison agents used by ground commanders. The missions are prescribed by the commander of the ground force to which such aviation units are assigned or attached.

■ 185. INFANTRY MISSION.—*a.* When the Infantry approaches to assaulting distance, the division commander sends out infantry airplanes on contact and liaison missions to observe the situation of our own and the hostile advanced Infantry. They report to the division commander and the commanders of infantry units the points on the front where the attack is stopped, those where penetrations have been effected, hostile counterattacks, and other features of the situation of our own and the hostile advanced Infantry. The infantry mission is dispatched only during actual contact with the enemy or when contact is imminent. It is usually active throughout the period when the Infantry is advancing or moving to the rear.

b. To accomplish this general mission, the air observer on an Infantry mission has the following specific duties:

(1) To report the location, strength, and movements of enemy front-line troops and local reserves.

(2) To report the progress of friendly front-line troops and advanced elements.

c. The airplane observer is usually instructed prior to the take-off to watch particular areas and to report certain information. In addition to such preflight instructions, the observer will frequently receive instructions or requests by radio or panel signal to report desired information during the mission. In addition to reporting specific information called for,

the observer on his own initiative reports information of all enemy activities observed.

d. In the performance of the infantry mission, division observation airplanes operate under division control. The observer cooperates with the various subordinate infantry units by maintaining close communication with them, principally through the use of panels, pyrotechnics, and drop and pick-up messages.

■ 186. PHOTOGRAPHIC MISSION.—Photographic projects of considerable magnitude are assigned and flown as separate missions. These include mosaics or reconnaissance strips of an area, or perhaps a series of obliques of an area over which operations are to be conducted.

■ 187. INFANTRY-AVIATION LIAISON; MEANS OF COMMUNICATION.—a. *Radio*.—For direct communication with the observation airplane the following units of the division are provided with suitable radio equipment:

Division headquarters (operated by signal company).

Field artillery battalions. (The regiment is not in the air-ground net.)

Observation squadron (when attached).

Tank and cavalry units, when present.

b. *Panels*.—Panels are strips of cloth used in signaling from ground to airplane. They are made in black or white, the color which best contrasts with the terrain being used. Panels are of two kinds, signaling and marking.

(1) Signaling panels are issued in sets to the command posts of all ground combat units down to and including the rifle battalion and tank companies. They are rectangular strips of cloth 12 feet long by 2 feet 4 inches wide. By means of prearranged combinations of panels, displays are made near the command post of a unit to identify and locate the unit, to show the location of the message dropping and message pick-up ground, and for the purpose of sending messages to an airplane when radio is not available for that purpose. Signaling panels provide the normal means of communication from ground to air for the infantry regiment and battalion. Messages transmitted by panel signal must be brief. Long messages which keep the airplane over a com-

mand post for an extended period are dangerous to the airplane and the command post.

(2) Marking panels are carried by the Infantry squads to mark out their position when signaled for by the airplane or as prearranged. They are small panels, 18 inches square, and are displayed only in the front lines. They are displayed in groups to make them more visible to the observer, who acknowledges them by a plane or pyrotechnic signal. Each Infantry squad has three marking panels. Troops should be careful to expose their panels only to friendly airplanes. For further details of the employment of panels see FM 24-5.

c. Pyrotechnics.—Pyrotechnics are used for sending signals according to a prearranged code when other means are not available. Airplanes use parachute signals fired by pyrotechnic pistols. Rocket signals are used for signaling between ground units. Airplane observers should be familiar with the use and meaning of such signals in order that they may relay them to the commanders concerned. Further details are in FM 24-5.

d. Pick-up message equipment.—Ground messages can be picked up by airplanes, by means of hooks, from pick-up devices installed on the ground. No standard equipment is issued for this purpose, as improvised equipment is usually suitable and available. A description of this equipment and its use is contained in FM 24-5.

e. Signals by airplane.—Signals should be devised for the following air-to-ground messages, and every infantry officer should be familiar with them:

(1) "Where are you?" (signal for display of panels), and "Understood."

(2) Other signals such as "Enemy threat in my direction" and "The ground I cover appears clear of the enemy" may be devised to meet foreseen requirements. Such signals should be changed from time to time to prevent their becoming known to the enemy.

CHAPTER 3

CAVALRY

■ 188. COOPERATION OF INFANTRY AND CAVALRY.—*a.* During the advance to contact, small cavalry elements may be employed in advance of the infantry advance guards, under corps or division commanders, on reconnaissance or security missions or to seize important terrain features. The cavalry commander keeps the advance guards informed concerning the enemy, regions swept by hostile artillery fire or contaminated by gas, obstacles encountered, and points where the enemy has been observed. When the infantry advance guard has a motorized reconnaissance detachment, the advance guard commander usually employs it to maintain contact with the Cavalry to his front. He also normally maintains a liaison officer, provided with means of communication and transportation, at the headquarters of the appropriate cavalry unit.

b. Similar cooperation is arranged in the preliminaries of the defensive battle and in retrograde movements. In the preliminaries of the defensive battle, the Cavalry usually carries out reconnaissance and executes such delay as is appropriate to its capabilities as long as there is sufficient space between the enemy and the defending Infantry. The Cavalry informs the infantry outpost concerning the hostile advance. The Infantry furnishes the Cavalry information concerning outpost dispositions and the regions which the defender can cover with fire, particularly prearranged fires.

NOTE.—“In retrograde movements Cavalry, making maximum use of its mobility, frequently will delay pursuing enemy forces by offensive action against their flanks; while the direct pressure of these pursuing forces is being contained by infantry elements.”

■ 189. EMPLOYMENT OF ATTACHED CAVALRY.—When Cavalry is attached to infantry units, infantry commanders assign missions suited to cavalry's high degree of mobility. They bear in mind the fact that Cavalry in combat seeks to attain success through rapidity of attack and delaying action rather than through the sustained effort which is required of Infantry. For details of cavalry employment see *FM 2-15.

*See appendix III.

CHAPTER 4

ENGINEERS

■ 190. MISSION AND DUTIES.—*a.* The mission of engineers in war is to increase the combat effectiveness of the other arms through the execution of work to—

Facilitate movement of our troops.

Impede movement of the enemy.

Provide for shelter and comfort of our troops.

b. Duties of concern to the Infantry include—

(1) Maintenance, improvement, and construction of routes of communication and movement, including the provision of means of crossing water courses in the presence of the enemy.

(2) Coordination, supervision, and assistance in—

Construction of local obstacles.

Preparation of antitank mine fields for close-in anti-mechanized defense.

Preparation and execution of local demolitions.

(3) Removal of tank obstacles and mines.

(4) Provisions of tools and materials for ground organization; construction of special works requiring skill and equipment not possessed by the occupying troops; and the planning work, laying out, and partial construction of defensive systems for contemplated organization.

(5) Procurement, preparation, and issue of maps.

(6) Sign-posting of routes.

(7) Establishing water-supply points.

(8) Traffic control.

■ 191. EQUIPMENT.—Engineer units have a variety of equipment, including large intrenching tools for issue to Infantry, demolition equipment, footbridge material, tractors, road graders, water-supply and electric-lighting equipment. Certain units are provided with assault boats or ponton material. The 11-man assault boat will carry, in addition to the crew of 2 engineer soldiers, any of the following: 9 riflemen; a machine-gun squad with gun, tripod, and a supply of ammunition; an 81-mm mortar squad (less 1 man) with mortar

and 50 rounds; 7 men of the communication platoon with communication equipment.

■ 192. EMPLOYMENT.—*a.* Engineer units are usually employed under their own commanders for the benefit of a large unit as a whole. Their attachment to Infantry is usually only for the accomplishment of a particular task. Advance guards, rear guards, pursuit columns, and units making stream crossings are reinforced by engineer elements when available.

b. Commanders of infantry units to which engineers are attached are responsible for the accomplishment of the necessary engineering work. The engineer officer commanding the attached unit makes recommendations as to the most effective use of the engineers. When an engineer unit is attached for the execution of a definite task, the infantry commander normally gives it the necessary tactical instructions without interfering in technical details.

■ 193. RECONNAISSANCE.—Engineer reconnaissance is conducted to determine the need for engineering work and to locate the material required. Infantry commanders facilitate this reconnaissance by assigning available engineer reconnaissance details to the most advanced elements of the Infantry and by reporting matters of engineering interest, such as the discovery of supplies of stone, gravel, or timbers for bridges.

CHAPTER 5

CHEMICAL TROOPS

■ 194. ORGANIZATION.—Chemical regiments (motorized), organically a part of GHQ reserve, are attached to lower echelons for tactical employment as needed. For large gas operations, chemical troops are usually employed by rifle battalions or larger units under division or higher control. Smaller gas operations may be carried out under brigade or regimental control; for smoke and minor gas operations during the progress of the attack or defense, a chemical platoon (four mortars) is the usual attachment to each first-echelon battalion.

■ 195. CAPABILITIES OF PLATOON.—The chemical platoon has considerably less tactical mobility than the 81-mm mortar platoon of the Infantry. The mortar cannot be manhandled over long distances. The platoon can function independently of higher chemical echelons except for ammunition supply. Using its normal armament and day of fire, it can place an effective concentration of nonpersistent gas on an area of approximately 200 yards in diameter, or an effective concentration of persistent gas on an area 700 yards in width by 200 yards in depth. It can normally lay a smoke screen covering the front of an infantry battalion. Its capabilities with its supplementary armament (cylinders, livens projectors, and land mines) depend upon the time available for supply and installation.

■ 196. EMPLOYMENT.—(Toxic chemical agents will not be employed against an adversary who refrains from resorting thereto.) In the attack chemical units attached to infantry regiments and battalions are used principally for smoke missions. In the defense they may use gas more freely. In a withdrawal chemical troops are frequently charged with interdicting selected areas by means of persistent gas.

a. Persistent agents will not be fired on areas that will be occupied by friendly troops during the period the agent is

effective. Hence, in the offense their employment is limited to small, well-defined areas in the zone of advance that can be easily avoided or to the protection of an exposed flank. In defense they are employed to deny to the enemy favorable assembly areas and avenues of approach, thus canalizing his attack and forcing him to utilize ground more effectively covered by the fire of other weapons.

b. Nonpersistent agents are employed principally in offensive and stabilized operations. They are fired only on occupied areas. Since surprise and concentration are essential to the production of casualties, the required quantity of nonpersistent gas should be fired in the minimum time, not more than 2 minutes.

c. (1) Smoke is employed to screen troop movements from hostile observation and to reduce the effectiveness of hostile fire; to protect a flank exposed to enfilade fire and to blind machine-gun nests; in defense to blind hostile observation, cover a withdrawal, and aid in counterattacks.

(2) When employed to screen an advance or to cover troop movements smoke is most effective when placed directly on or immediately in front of the enemy's front lines or on his observation posts. In river crossings it is employed on broad fronts to deceive the enemy as to the location of the crossing operations. Since aimed fire is essential to successful defense, smoke should not be employed in defensive operations where it will reduce the effectiveness of one's own fire.

(3) Since smoke drifts with the wind, care is exercised in its employment to prevent hindrance to the operations of adjacent units. An effective smoke screen is difficult to maintain when the wind velocity is greater than 12 miles per hour.

PART FOUR
INFANTRY UNITS
CHAPTER 1

THE INDIVIDUAL INFANTRY SOLDIER

■ 197. **QUALIFICATIONS.**—The infantry soldier is trained to meet the following minimum requirements:

a. Be physically conditioned for extended field service and practiced in the use of his physical faculties.

b. Be instructed in the proper care and maintenance of his arms and equipment in the field.

c. Be skilled in the use of the weapon with which he is armed or which he serves.

d. Have an understanding of the effects of weapons, and the characteristics and effects of toxic chemicals, projectiles, and the means of gas defense.

e. Be instructed in terrain forms, cover and concealment, representation of terrain forms on maps, use of intrenching tools, and construction of obstacles.

f. Be practiced in the duties falling to the individual soldier on the march, in shelter, and in combat.

■ 198. **SCOPE OF INSTRUCTION.**—*a.* The physical training of the soldier is such as gradually to develop and strengthen his endurance and ability to stand the privations of campaign. He receives practice in the use of his physical faculties—body, eyes, and ears—under both day and night conditions. He is also instructed in personal hygiene and first-aid.

b. He is trained in the following subjects:

Infantry drill.

Care of equipment.

Military courtesy and discipline.

Defense against chemical agents.

Map reading.

Camouflage.

Other subjects as outlined in subsequent paragraphs of this chapter.

c. For reference to appropriate training publications, see appendix III.

■ 199. EFFECT OF WEAPONS AND PROJECTILES.—The soldier is instructed in the effects and capabilities of weapons. Advantage is taken of opportunities to have him witness the firing of all infantry weapons and the several calibers of divisional artillery. The purpose of this instruction is to familiarize the soldier with the conditions of battle and to teach him to interpret correctly the impressions he receives.

a. With respect to small-arms fire he is taught to identify the reports of discharge and the detonation of the several classes of weapons and projectiles and to observe their fire effects from the closest possible distance. He is taught to distinguish between the report of discharge of small arms and the sound (crack) of bullets in flight and to locate the origin of fire from the report of discharge and not from the crack of the bullet.

b. With reference to artillery fire, he is taught to recognize the whine or shriek of the projectile passing through the air and to sense the proximity of a burst.

■ 200. MAP READING AND ORIENTATION.—a. The soldier is taught to recognize the major terrain features on a military map (fig. 1); the master lines of topography, stream lines and how they indicate a ridge line and watershed, roads and the other principal works of man, and how they can be identified on a map, sketch, or aerial photograph; how to locate his position on the map by resection, by detail, and by other methods.

b. The soldier is taught how to use a compass to determine direction and how to follow a course by compass bearings. He is taught to orient himself without a compass by day using a watch and the sun (fig. 2); by night from the Big Dipper and North Star (fig. 3). (See *FM 21-25.) Further training in map reading and sketching is given to leaders, scouts, and other soldiers who show aptitude for this type of instruction.

*See appendix III.

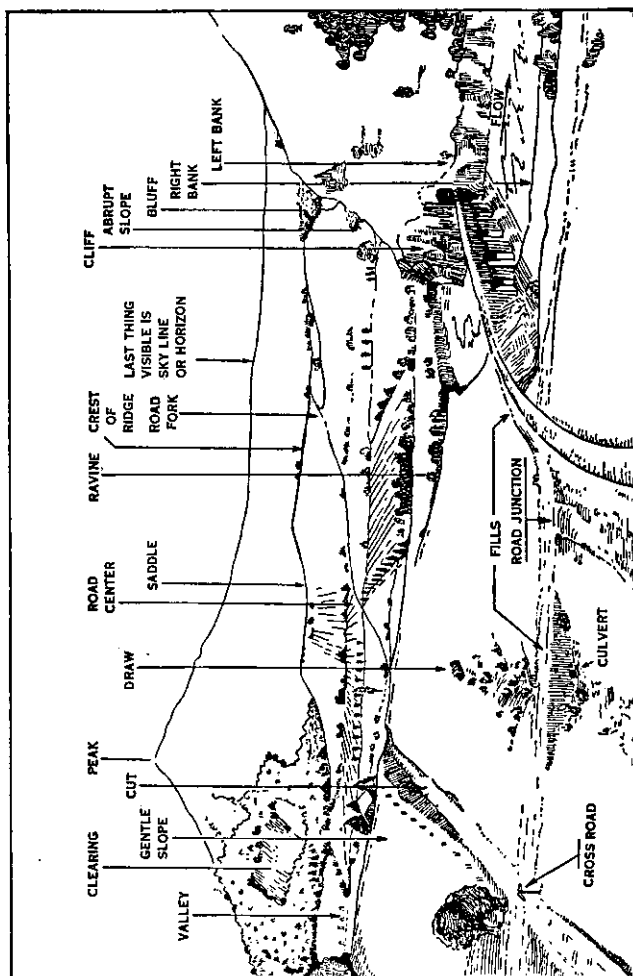


FIGURE 1.—Military features of terrain.

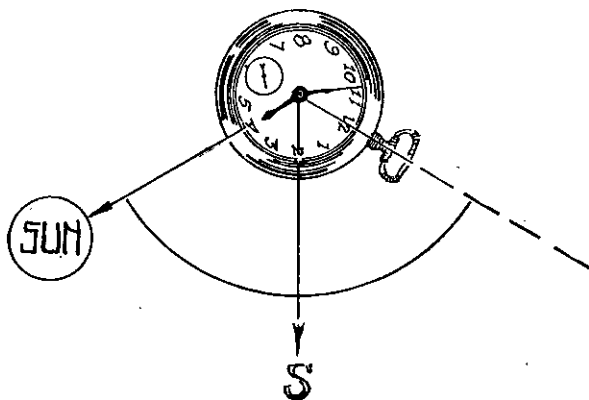


FIGURE 2.—Method of determining direction by watch and sun.

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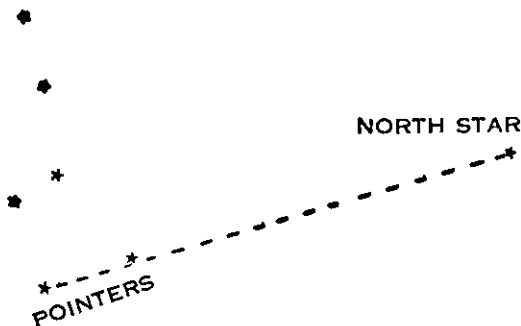


FIGURE 3.—Locating North Star by means of Big Dipper.

■ 201. COVER AND CONCEALMENT (fig. 4).—*a*. The soldier is taught to distinguish between cover and concealment and their proper use. He is trained to recognize terrain features that give cover against fire and those which afford concealment from observation only. He must understand that concealment affords protection only while the enemy does not

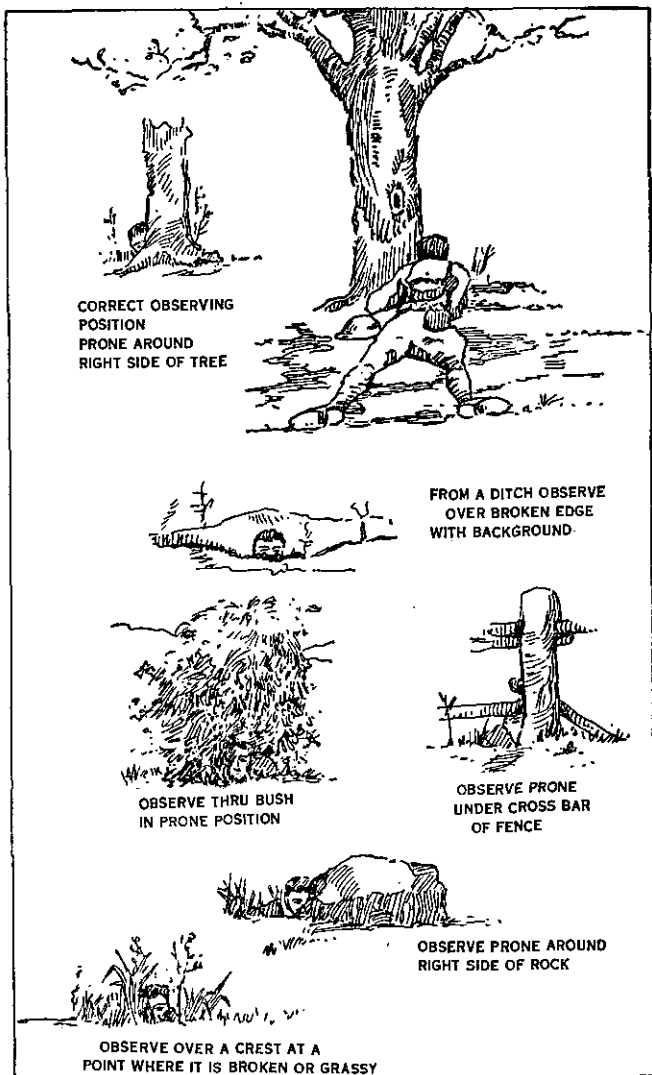


FIGURE 4.—Correct use of cover.

know that the terrain feature is occupied. He is shown that ground which to the untrained eye may appear flat often contains small depressions and humps affording cover against flat-trajectory fire.

b. The soldier is trained to present only a small and inconspicuous target. He is shown how to take advantage of the shape and color of the ground and background. He is warned against taking cover behind isolated trees and bushes or occupying positions which stand out against the skyline or are in sharp contrast to the surrounding terrain. He avoids all unnecessary movement. He looks and fires around the right side of trees or other concealment. Unless the outline is broken, he avoids looking over the top of cover if it can be avoided. In observing, he takes the position which will most reduce his exposure to view. He is practiced in observing from the prone position. When practicable, he keeps in the shade so as to cast no shadow which might reveal his position.

c. By demonstration, the soldier is shown that—

(1) Visibility may sometimes be diminished by staining the face with mud.

(2) Cloaks made of gunny sacks or sandbags covered with leaves may be used to conceal men who must remain in a fixed position for a long time.

(3) Observation over a sandbag parapet may be facilitated by the use of a sandbag drawn over the head with a few strands taken out in front of the eyes.

(4) White garments are useful on a snowy terrain, especially on a cloudy, windy day. Care should be taken that the wearer's shadow does not reveal his position.

d. The correct and the incorrect methods of utilizing cover and concealment are taught by practical demonstration.

■ 202. INTRENCHING TOOLS.—*a. General.*—The intrenching tools with which the infantry soldier is equipped comprise a pickmattock, hand ax, and a short-handled shovel. (For list of other equipment see appendix II.) They are the main reliance of the soldier for the construction of hasty intrenchments. He is taught to use them with a minimum of exposure.

b. *Use under fire.*—(1) The infantry pick is used from a prone or crouching position. In the prone position, the soldier lies on one side, spreads the legs scissors-fashion, the

upper leg forward and stiff to secure leverage. With the lower hand, the pick handle is grasped at a point about half-way between its end and the head. With the other hand he grasps the handle near the end. The soil to the front and side is loosened by short vertical strokes.

(2) The infantry shovel is used from a prone position. The soldier lies on one side, spreads the legs apart scissors-fashion, the lower leg forward and stiffened to secure leverage. With the lower hand he grips the shovel handle near the blade, and with the upper from above at the T. Excavation is accomplished by pushing the shovel forward, depositing the material above the head or to the far side of the excavation. The soldier completes the cover by rolling into the excavation and working in a similar manner from the other side.

■ 203. CONSTRUCTION OF OBSTACLES.—The soldier is trained in the construction of low-wire entanglements, double-apron fence, the knife rest or cheval-de-frise, and the dead abatis. Instruction in these subjects is prescribed in FM 5-15.

■ 204. RANGE ESTIMATION.—In battle, the effectiveness of small-arms fire beyond close range depends in large measure upon the accuracy of range estimation. Accuracy in range estimation is also an important factor in the location and identification of objects by scouts and observers. Since untrained men make an average error of 15 percent of the range, training in range estimation is very important. As a minimum requirement the individual soldier will be able to estimate ranges up to 600 yards and be sufficiently versed in estimation of longer ranges to enable him to locate reference points designated. Scouts and men selected for patrol duty must be especially proficient in range estimation.

■ 205. SENTINEL.—*a.* The sentinel is usually a part of a security detachment whose primary mission is to protect a larger body; or an element of local security of a unit to insure its safety and readiness for action. When on duty as sentinel of an outguard or detachment of troops, the soldier must have the following information:

- (1) Direction and probable route of approach of the enemy.
- (2) Sector he is required to watch.

(3) Names of features of military importance (villages, roads, streams).

(4) Location of the nearest outguards or detachments on the flanks and the means of communicating with them; number and location of his outguard and support and routes to them.

(5) Whether patrols or other friendly troops are to his front.

(6) Special signals.

(7) Instructions concerning challenging.

(8) Conduct in case of attack.

b. The sentinel, when practicable, is equipped with field glasses and means of signaling. Heavy articles of equipment may be laid aside. The sentinel constantly observes his assigned sector from a concealed position and reports any unusual circumstances to his immediate superior. He allows officers and soldiers to pass in either direction on recognition. He passes on to his relief all information and instructions relative to his post. When halting a stranger, he keeps him covered and calls for his commander, who makes the necessary examination of passes. If danger is pressing, the sentinel fires. Where challenging at night is required, a challenged person who fails to stop at the third command to halt, or attempts to escape, is shot. The sentinel need not challenge if certain that he has recognized an enemy. If deserters or a small hostile party displaying a white flag approach, the sentinel causes them to lay down their arms and calls the outguard commander.

c. In addition to the foregoing duties sentinels perform the duties of antiaircraft and antitank lookouts (pars. 208 and 209).

■ 206. MESSENGER.—In active operations, it is the duty of the messenger to deliver messages within a minimum time. The accomplishment of his mission generally requires that he utilize the terrain so as to avoid unduly exposing himself. He avoids careless actions which might betray the location of the sending or receiving stations. In the prolonged occupation of a position, special care must be taken to avoid marking out paths which betray the location of command posts and

message centers. Before starting out, the messenger repeats back oral messages and asks questions concerning any points that are not clear. He orients himself on the terrain before starting and selects landmarks to assist him to find his way. When necessary, he inquires of any troops encountered the whereabouts of the person or headquarters for whom the message is intended. If delayed or lost, he shows or explains the message to an officer and asks for advice. Any information of importance obtained en route by the messenger is reported to the recipient of the message. The messenger distinguishes between what he has seen and heard and what he has been told by someone else. Before returning, the messenger inquires whether there are messages or orders to be taken back. Upon his return, he reports the execution of his mission. For further details of messenger duty see FM 24-5.

■ 207. **CONNECTING FILE.**—The duty of a connecting file is to maintain connection between elements of a marching column or echelons of a unit in approach march or between a commander on reconnaissance and his unit. A connecting file in a marching column usually consists of two men. One maintains touch with the element in front, the other with the rear. They are usually furnished by the rear element. Connecting files halt only on orders or signals from the rear or when the element in front of them halts. They repeat signals sent from front or rear. The distance between connecting files will usually be about 100 yards by day; at night or when visibility is poor the distance is decreased. In general, connecting files maintain their original distance; however, they regulate their movement and their distance from each other with a view to the maintenance of visual connection with each other and the groups ahead and behind. Connecting files see that the element following them takes the correct road. Special care is necessary in turning off a road in forests, inhabited localities, and in darkness and fog.

■ 208. **ANTIAIRCRAFT LOOKOUTS.**—The duty of antiaircraft lookouts is to guard the unit against surprise by enemy airplanes on the march, in shelter, or in combat. They may be stationed at one post, march abreast of a marching unit, or

move to successive observation posts by motor transport. Antiaircraft lookouts observe in every direction, especially that from which attacks are to be expected. The direction of the sun or of hills, woods, or other cover which might screen low-flying attacks is particularly dangerous. Antiaircraft lookouts usually operate in pairs and relieve each other at intervals of not to exceed 15 minutes. They are equipped with field glasses and sun glasses and instructed as to the alarm signal to be used (by signal projector, if available, or by other prescribed signal). They are trained to recognize hostile airplanes and prearranged identification signals. The alarm is given as soon as low-flying planes not positively identified as friendly are seen. Observers at emplacements of antiaircraft weapons and at command and observation posts watch antiaircraft lookouts for signals.

■ 209. ANTITANK LOOKOUTS.—Antitank lookouts give warning of the approach of hostile mechanized vehicles by prearranged sound and visual signals. The duties of antiaircraft and antitank lookouts may be combined. At a distance from the enemy, the roads constitute the most probable routes of approach of hostile mechanized elements or hostile tanks. Near the enemy, the whole front of advance must be observed. Upon seeing or hearing antitank warning signal, individual soldiers under the control of commanders await orders. Isolated individuals seek cover nearby. Deep fox holes, thick woods, and terrain intersected by boulders, trees, walls, or ditches are utilized. The approach of tanks may be revealed or suspected by the noise of their motors and tracks or by unusual dust columns.

■ 210. MARCH.—*a.* The soldier marches at an even, steady gait, keeping closed up to the prescribed distance. If men ahead gain distance or slow up, he changes the length of his steps so as gradually to regain his proper position. Sudden increases in gait or sudden stops are avoided. Riflemen sling their rifles or carry them at the right or left shoulder, keeping the muzzles well elevated so as not to endanger or interfere with other men. They do not leave the column on the march, or the vicinity of their units during halts, without permission.

b. During halts, the soldier falls out on the right side of the road, unless otherwise directed. He is careful to keep road junctions and crossroads clear. With full pack, he sits or lies down so as to take the weight of the equipment off the shoulders. Equipment is not removed, unless directed, but belts may be loosened. If necessary, equipment is readjusted so that packs and belts do not sag. The soldier obtains drinking water from authorized sources only. He drinks sparingly from his canteen.

■ 211. BIVOUAC OR LONG HALTS.—The soldier makes all possible use of concealment from airplane observation. Equipment which is laid aside is placed under bushes or close to trunks of trees. Exposure of objects of regular shape, such as blankets, is avoided. Shelter tents, if pitched, are distributed irregularly and camouflaged. A branch or two to break the outline and hide the open front of the tent are better than a large pile of branches. Camouflaged nets, where available, may be advantageously used where vegetation is lacking.

■ 212. NIGHT TRAINING.—*a.* Night training is begun on known terrain in twilight in order to demonstrate to the soldier the difference between appearance of objects by day and by night. As training progresses the exercises are continued on known terrain at night until finally they are conducted at night over strange terrain. Certain phases of the night training are best conducted in daytime with use of dark glasses which reproduce night visibility conditions. Individual night training comprises night movement, maintenance of direction, and ear and eye training.

b. Training in silent movement is given by demonstrations and practice. Exercises are held in which blindfolded men try to detect noise made by others approaching them. Instruction and practice are given in methods of crossing obstacles noiselessly, in cutting and crossing wire entanglements, and in crossing trenches. Demonstrations are used to show the clear silhouette of a man on a skyline and the concealment afforded by proper use of shadows. The soldier is trained to fasten his equipment so that it does not rattle,

clank, or reflect light. Demonstrations are given to show the effects of unsecured equipment.

c. Men are given the following instructions:

(1) When the enemy is using many flares he probably has few patrols out; when he is not employing flares his patrols are likely to be numerous.

(2) A threatened sneeze may often be stopped by pressing upward with the fingers against the nostrils.

(3) A threatened cough may often be stopped by a slight pressure on the Adam's apple.

(4) Delay should be avoided by moving boldly when firing is going on. Advantage should be taken of any sound, such as shelling, wind rustling, or distant firing, to push forward.

(5) In damp and rainy weather when the enemy has been using gas, shell holes should be avoided.

(6) Not to smoke or make any light.

(7) The eyes should not be strained by concentrating on one object too long. If objects blur, the eyelids should be lowered slowly, kept closed for a few seconds, and then opened slowly.

(8) Sounds of men walking are heard better if the ear is held close to the ground. Sounds are transmitted a greater distance in wet weather than in dry.

(9) All patrols or persons met should be considered hostile until proved friendly. When someone is met the soldier should crouch low to get the approaching person silhouetted against the sky and at the same time to offer him an indistinct target if he proves to be an enemy. If fired on close to the enemy line, the soldier should not return the fire except to avoid capture.

(10) Men must be as careful in returning as in starting out in order to avoid hostile patrols and to keep from being fired upon by friendly sentries.

(11) When a man hears the sound of a flare leaving its discharger he should drop to the ground before the burst. If he is caught unexpectedly by a bursting flare, he should freeze in position and remain motionless until the light dies down. The best time to move is just after the light has gone out. He must be careful not to be caught in motion by recurrent flares.

When illuminated by a flare the eyes should be kept lowered until the light goes out to avoid temporary blindness.

(12) Steel helmets should not be worn on night missions because they make a distinctive noise when they touch barbed wire or other hard substances; they show an unmistakable outline; and they prevent crawling with the face to the ground. When near the enemy men should crawl sidewise in moving to a flank.

(13) All movement is accomplished quietly. In order to walk silently on soft ground the soldier lowers his foot, heel first, and then puts the ball of the foot on the ground slowly and quietly. On hard ground he places the toe first and then lowers the heel into place. Through grass he raises the foot before carrying it forward and lowering it, heel first as on soft ground. When crawling at night the soldier tests the ground in front before each movement to make sure that nothing will obstruct his passage or make a noise.

(14) To step over low wire at night a man should crouch low so that he can see the strands against the sky. He should then grasp the first strand with one hand and with the other reach forward and feel for a clear spot where he can put his foot without stepping on other strands or any objects apt to make a noise. To avoid catching his foot in another strand he lifts it up and over close to the hand grasping the wire.

(15) On encountering high wire, the soldier should go under it on his back, grasping the lowest strands in his hands and holding them clear of his body while he works under them.

(16) When two men cut wire together, one firmly holds the wire close to the cutters, in order to muffle the sound and prevent the loose ends from flying back, while the other man cuts. They bend back the loose ends to form a passage. A man working alone cuts near a post where he has but one loose end of wire to dispose of. He grasps the wire close to a post and cuts between his hand and the post, thus muffling the sound and keeping the loose wire in his grasp.

CAUTIONS: A piece of sandbag wrapped around the wire cutters will deaden the sound of wire cutting. A gap in the wire should not be cut perpendicular to the front. If a gap

is cut in the enemy wire, it is well to leave the top wires intact to lessen the chances of its discovery.

(17) In crossing trenches, the man should crawl silently up to the edge of the trench and look into it. He should remove all loose dirt and rocks from the edge. If it is a narrow trench, he springs up and jumps across, sinking quietly to the ground on the other side and remaining there a moment listening before proceeding. If the trench is wide, the man must climb silently and slowly down into it and out the other side, using the revetment to assist him.

Before crossing a trench, a man should wait outside for a while and listen. A trench should not be crossed near its junction with a communicating trench. Enemy trenches should not be entered unless for a definite purpose and in compliance with specific orders. Ordinarily, work can be better accomplished from the outside. If it is necessary to enter a trench, it should be crossed and the place where work is to be done approached from the rear, since enemy sentries pay more attention to sounds in front of them than to those in the rear.

d. Sight training and sound training have as objects not only the development of the soldier's perceptive faculties but also training in the means of screening his own location and movements from hostile observation and hearing. The soldier is trained to identify sounds such as conversation, coughing, working the bolt in a rifle, rattling of equipment, cutting wire, digging, troops marching, and the like; to estimate the origin of sounds and their approximate distance and compass bearing from his location. By demonstration and practice, the soldier is shown that—

(1) Sounds are audible at greater distances on still nights than in the daytime. There is a tendency to underestimate distances at night.

(2) Observation at night can usually be carried out more effectively from a prone rather than from a standing position.

(3) Colors are not distinguishable at night; the eye can only distinguish between light and dark.

(4) Dark objects stand out on a light background and vice versa.

(5) At night objects have no perspective; surfaces only (not volume) can be perceived. A hedgerow seen from the side or obliquely may look like a single bush or a thicket; the interior corners of a building are blotted out.

(6) Objects appear larger and more distant at night than in daylight.

(7) On moonlight nights observation in the direction of the moon is less effective than when the observer faces away from it.

e. Night marching.—(1) Individuals are taught to cover accurately in file and dress and pay close attention to their file leader and adjacent men in order to conform promptly to the movements of the file leader. They do not look down, and feet are lifted well off the ground. The soldier must make no outcry or other noise if he stumbles, has his feet stepped on, or falls into a hole. Care must be taken to hold the rifle so as to avoid striking other men.

(2) The pace must be regulated in accordance with the character of the ground; the rougher the ground the slower the pace. On rough ground it may be necessary to move at a rate as slow as 1,000 yards per hour.

(3) Exercises in halting, kneeling, arising, lying down, changing direction without command and by way of imitation are held. On change of direction, pace should slacken to avoid falling into a hole or running into an obstacle; each man turns on the same ground as the file leader.

(4) The use of exposed lights betrays the whereabouts of troops. The soldier is taught to read and write messages by shading his light from observation. The glowing tip of cigars and cigarettes, the flames of matches, flashlights, and luminous dial watches are visible for long distances, particularly from the air.

■ 213. INDIVIDUAL CONDUCT.—*a.* Walking wounded leave the battlefield alone. They report to their commanders and turn over their ammunition before leaving. Infantry soldiers will not carry wounded men to the rear without a written order from an officer. Such duty is performed by medical or specially detailed personnel.

b. A soldier who becomes separated from his unit will report to the commander of the nearest organization and par-

ticipate in combat with it. At the conclusion of the action he will secure a written statement to the effect that he was present with the organization.

c. A soldier made prisoner is obligated, by the international rules of warfare, to give only his name, grade, and serial number. He will maintain strict silence about other matters. Any facts revealed concerning friendly troops or material may be of great interest to the enemy and result in defeat to the army and death to comrades. False answers to questions are dangerous; the soldier should merely refuse to answer. He must not allow himself to be intimidated by threats and thereby led to disclose information.

d. The soldier will not take to the battlefield letters, diaries, or other written papers. If maps or documents are entrusted to him, he will destroy them if capture appears unavoidable.

e. Acts of violence against a peaceful population, damaging of property, or looting are forbidden. Force may be used to resist hostile acts of civilians. Prisoners and wounded will not be mistreated or their property appropriated.

■ 214. SPECIFIC COMBAT MISSIONS.—In addition to the basic training prescribed in the foregoing paragraphs, the infantry soldier specializes in the training of the unit to which he is assigned. He is required to meet the standard of proficiency in the combat missions he is called upon to perform.

Soldiers of the rifle regiment are grouped into three general classifications from the viewpoint of individual training:

a. *Overhead personnel*.—The function of overhead personnel in combat is the supply, maintenance, communication, transportation, and administration of combat units; their combat action is limited to self-defense or to emergency employment. Soldiers in this classification are grouped in the regimental headquarters company, service company, the headquarters detachments of the battalions, and company administrative and supply groups. They are trained in the basic duties of the individual soldier (par. 198) and in their various specialties (truck driver, telephone operator, clerk, mechanic, etc.). They are armed with either the pistol or rifle. All soldiers in this classification are required to be proficient in the use of weapons, as follows:

(1) *Rifle*.—Initially so much as is necessary to qualify the soldier to use the rifle in emergencies.

(2) *Pistol* (for those so armed).

(3) *Machine gun, caliber .30 (light or heavy) and automatic rifle*.—Drivers and assistant drivers will have sufficient training to operate vehicle weapons for antiaircraft fires.

b. Personnel of crew-operated weapons.—These men are grouped in rifle company weapons platoon, heavy weapons companies, and regimental antitank platoons. They are trained in the use of the weapons of their unit, as prescribed in appropriate Field Manual for each piece (see appendix III). In addition, all individuals of units armed with crew-operated weapons (except automatic rifle) will be trained, where practicable, in the use of other weapons, as follows:

(1) *Rifle*.—So much of the training prescribed in Basic Field Manuals as enables the soldier to use the rifle in emergencies.

(2) *Pistol*.—As prescribed in FM 23-35.

(3) *Bayonet*.—To defend themselves against the bayonet (disarming tactics) and to use the bayonet in emergencies in self-defense (FM 23-25).

(4) *Grenades*.—As prescribed in FM 23-30.

(5) *Machine gun, caliber .30 (light or heavy)*.—Sufficient training to operate carrier machine guns for antiaircraft fire.

c. Soldiers of rifle platoons.—(1) Thorough training of the individual rifleman in all phases of operations and combat is a basic condition of successful infantry offensive action. The soldier is required to be proficient in the use of weapons as prescribed in appropriate Basic Field Manual for each piece:

Rifle.

Bayonet.

Automatic rifle.

Grenades.

Signal projector.

(2) Rifle company commanders are responsible that non-commissioned officers of rifle platoons receive sufficient instruction in the 60-mm mortar and light machine gun to control the fire of these weapons in an emergency in combat.

d. Members of intelligence platoons.—These men require

the same training and proficiency in the rifle and pistol as soldiers of rifle platoons.

■ 215. MISSIONS OF RIFLEMAN.—*a. As skirmisher.*—(1) The rifleman is taught the proper utilization of cover in connection with his firing position. He occupies a crest only when actually engaged in firing. Where practicable on ceasing fire he resumes his cover position on orders of his squad leader and looks to him for further orders.

(2) Riflemen deliver aimed fires at selected point or line targets.

(3) At times individual enemies will be visible; more often the rifleman will fire at probable points of emplacement of hostile weapons or skirmishers or points where slight movement or flashes have been observed. The rifleman fires his first shot on a part of the target or objective corresponding generally to his position in the squad. He then distributes his fire by aiming at selected points a few yards to the right or left of his first shot. A slower rate of fire than the standard for rapid-fire practice will often be advisable because of the difficulty of selecting indistinct targets on the battlefield.

(4) Skirmishers do not advance by rushes over long stretches of open terrain. The next objective is habitually designated by the squad leader, and the advance is made from cover to cover under his direction. In accordance with orders or the situation, the skirmisher, starting from cover, changes position by creeping, crawling, rushing, or walking, or a combination of these methods. Creeping or crawling is used to take advantage of slight concealment or to cross very short stretches of open ground. Walking is permissible only when a mask completely screening the standing silhouette is available.

(5) The rifleman is taught to distinguish between fire and cover positions. The firing position is one from which the rifleman may observe and deliver the fire of his weapon on the target. The cover position is one which affords protection to the rifleman from hostile flat-trajectory fire, and must be in the immediate rear of the fire position (usually not more than 3 paces). In individual advances a skirmisher moves from one cover position to the next. He advances toward a crest or rise and finishes the rush in the cover position behind it.

He crawls or creeps from cover to the fire position with minimum exposure to hostile view and fire. Movements to the flank under enemy observation within small-arms range are carefully avoided. The soldier selects his route of advance to each position so as to obviate any necessity for lateral movement across the front of the enemy. In squad rushes, he awaits the orders of the squad leader in the cover position.

(6) Preparations for starting an individual advance or a squad rush are made in the cover position, wherever practicable. Pieces are locked and sights laid. The squad leader commands: **PREPARE TO RUSH**, before starting a squad rush and fixes the moment of execution by the command **FOLLOW ME**.

(7) When creeping, the body rests on the knees, the elbows, and the forearms. The head and buttocks are kept down. The knees are always behind the buttocks.

(8) To crawl, the soldier in the prone position slowly places his hands beside his head, keeping his elbows down. He draws up his right leg and with it pushes the body forward, rising slightly on the forearms while moving. At a distance from the enemy and where cover permits, he can advance faster by rising slightly on his forearms and pushing alternately with each leg.

(9) The rifleman prepares to execute a rush from the prone position by drawing his arms in until his hands are opposite his head, elbows away from his body and down. He then quickly raises his body by straightening his arms, shifts the weight of his body to the left arm and leg, throws his right leg forward, and jumps off to the right front. While running, he bends his body forward as low as is consistent with maximum speed. The left shoulder is held forward. The rifle is held with both hands, left hand near the balance, right hand at the small of the stock. To lie down, the rifleman drops to the ground quickly in the most convenient manner. He breaks his fall with the left hand or rifle butt and avoids striking the ground with the muzzle of the piece. Preparation for a change of position is best made under cover. Careless movement before a rush may betray the object of the preparations to the enemy. Slowness in rising and running forward lengthens the period of exposure.

(10) The soldier is taught that in defense he will hold his assigned position at all costs, disregarding orders for withdrawal unless certain of their origin. In case of tank attack he occupies terrain impracticable for tank movement, or takes cover in fox holes, reoccupying his firing position after passage of tanks. The soldier is taught that fatal consequences will follow flight from tank attack, and that he must be prepared to fire on the hostile Infantry following the tank attack. He will continue to fight even when surrounded and will hold out until the enemy is defeated.

b. Observers.—(1) In an observation post the soldier avoids unnecessary movement. He leaves his position by a route different from that of his approach. When an observation post is to be occupied for several days, care is taken to avoid making a trail that can be picked up by an aerial observer.

(2) The observer looks first at the ground nearest him, where an enemy will be most dangerous to him. He first searches a narrow strip close to him from right to left, parallel to his front. He then searches from left to right a second more distant strip overlapping the first. He continues in this manner until the entire field of view is covered, (fig. 5). He looks a little to one side of a suspected spot and not directly at it, as the eye is more responsive to movements within the suspected area when it is viewed in this manner.

(3) In looking across a body of water when the sun is shining, the eye should be shaded from below to shut out the glare from the water.

(4) To avoid being seen, the soldier remains in shadows and chooses a position with a dark background. He sees best from a prone position so that objects appear against the skyline.

c. Reconnaissance scouts.—(1) Scouts are trained to reconnoiter and gain information of the whereabouts, movement, and condition of the enemy.

(2) Scouts operate in accordance with the fundamentals of concealment indicated in paragraph 201; they have greater latitude in movement and are therefore able to conceal themselves more effectively.

(3) The scout operates in exposed areas by moving rapidly from cover to cover and remaining motionless when not

changing position. The scout acts always as though he were being observed.

(4) When the scout stops in the open or under cover, he lies motionless with the body stretched out and all parts as

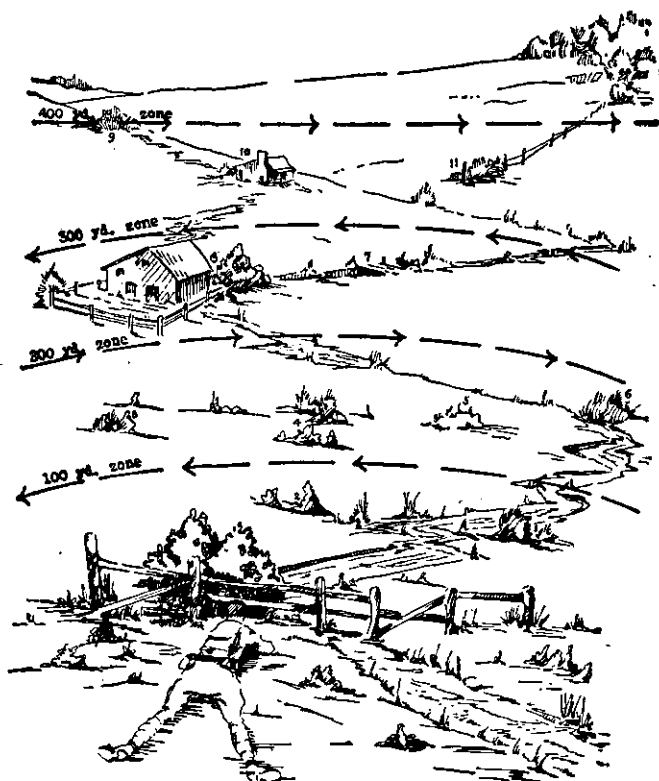


FIGURE 5.—Method of searching ground.

close to the ground as possible. To observe, he lifts his head slowly and steadily, avoiding all abrupt movements. When changing position, he avoids exposure which would betray his intentions to the enemy. In crossing an open space, he

springs up, runs at top speed with his body bent low, drops to the ground, and remains motionless. If a wall or shallow ditch is available, he creeps behind it, keeping his head and buttocks low. If he is behind a slight rise or very close to the enemy, he crawls, keeping all parts of his body close to the ground.

(5) In the open, in proximity to the enemy, the scout moves by rushes from cover to cover. Before starting he selects his route according to the cover afforded and the activity of the enemy. He may need to make wide detours around open spaces or those occupied by enemy patrols. His advance will seldom be in a straight line. He moves along hedges, hollows, woods, and ravines which run parallel or nearly so to his course (fig. 6). He notes those places which the enemy may be using for observation and moves as if he were being observed from them. From each covered position he picks out his next stopping place, choosing inconspicuous places offering good concealment. Before leaving cover he closely observes the next stopping place until he is sure it does not conceal an enemy.

(6) In order to carry out his mission, the scout must generally occupy one or more observation points. Before starting he studies his mission, makes his plans, and selects tentative observation points, either from a map or the ground. When he arrives near a previously selected observation point, he observes closely for 5 or 10 minutes to be sure it is not occupied. He then decides upon the exact location of the observation point. Of several equally good positions, he should choose the least prominent.

(7) Having chosen the observation point, the scout moves to it by a covered route (fig. 7). In approaching a hill he crawls to a place where the skyline is broken. In observing from a building he keeps back from doors and windows. In observing from a tree he selects one with a background that will prevent his being silhouetted against the sky, either while climbing or observing. He clings closely to the trunk at all times.

d. Platoon scouts.—(1) Two riflemen per rifle squad are designated as platoon scouts. They are charged with the mission of protecting the advance of the platoon in attack.

Their conduct differs from that of reconnaissance scouts; whereas the latter move slowly and cautiously, taking full advantage of cover and concealment, the former move boldly out in front of their platoon with the mission of reconnoiter-



FIGURE 6.—Scout's route of advance, showing use of cover.

ing successive positions along the route of advance, forcing enemy riflemen and machine guns to disclose their position.

(2) Scouts deploy in pairs at wide and irregular intervals. They watch for signals from the platoon leader, who controls their actions. They move out in front of the platoon to the nearest cover within midrange which may be occupied by

enemy elements. The platoon is held under cover while the scouts investigate possible enemy positions; it resumes its

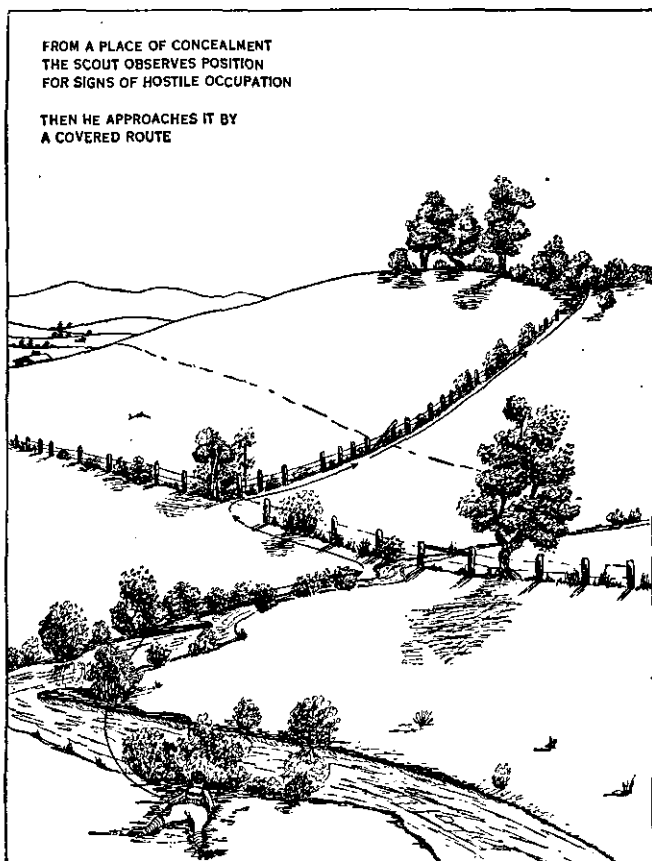


FIGURE 7.—Method of approaching an observing position.

advance when the scouts signal that all is clear. Scouts then move forward to continue their reconnaissance.

(3) Platoon scouts take advantage of cover without delaying their advance. Exposed ground is crossed at a run.

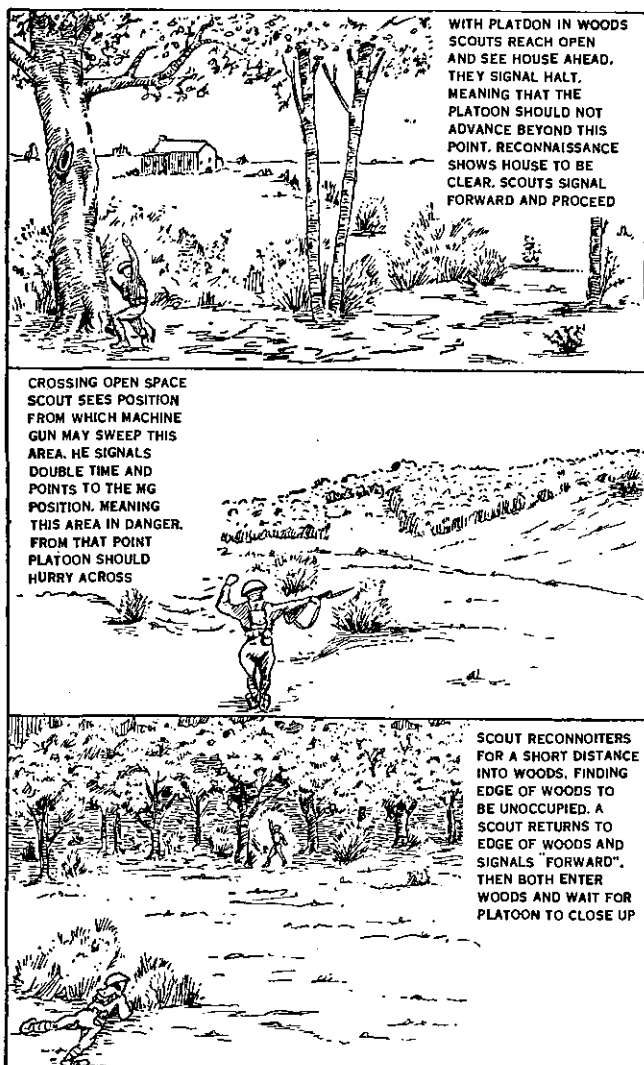


FIGURE 8.—Conduct of scouts during an advance.

Their distance in front of the platoon varies with the ground and with the position of the enemy. One moment they may be 500 yards ahead; shortly after, they may be absorbed within their units. In approaching houses, natural defenses, woods, and villages, one scout of each pair covers the other while the latter reconnoiters.

(4) When scouts reach a woods, one of each pair reconnoiters within for a short distance to make sure that the edge is unoccupied, the other covering his movement. As soon as the scout within the woods determines that the edge is unoccupied he returns to the edge and signals "Forward" (fig. 8). This signal is repeated by the second scout to the platoon leader. Both scouts then enter the woods and maintain observation toward the enemy until the platoon comes up.

(a) *To emerge and continue the advance.*—Scouts passing through woods ahead of their platoon keep within sight and hearing distance. If an obstacle is encountered, reconnaissance to the front and flanks must be carried out. When advancing along a road or path, scouts precede the platoon so as to provide the necessary protection and prevent surprise fire upon the platoon. When crossing a road or path scouts reconnoiter well to the flanks before signaling "All clear" to the platoon. Scouts do not move out of the woods until the arrival of the platoon leader, who will give further directions. When sent ahead to reconnoiter dangerous points they signal back whether conditions seem to require a halt, an advance, or a quick rush across the open. They are continually on the lookout for signals from the rear.

(b) *Action when fired on.*—When the enemy opens fire the scouts stop, seek cover, and try to determine where the fire is coming from. If the enemy discloses his position, one scout of each pair moves to the best nearby firing position and opens fire with tracer ammunition to indicate the target. The second scout observes and orders necessary changes in range. When adjustment is completed he also opens fire. If the scouts have no tracer ammunition, one opens fire and the other points out the target to the platoon leader.

CHAPTER 2

RIFLE UNITS

	Paragraphs
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SECTION I

RIFLE SQUAD

■ 216. REFERENCES.—For composition, armament, and equipment see appendix II.

■ 217. MISSIONS.—The missions of the rifle squad comprise—
 Combat group in attack and defense.
 Patrol.
 Outguard.
 Combat outpost.

■ 218. MOVEMENTS AND DISPOSITIONS.—*a.* The dispositions of the squad in extended order are covered in FM 22-5. The squad may move as a unit or by half-squads. In the latter case, each half-squad is led as a squad.

b. In the approach march the initial dispositions are prescribed by the platoon leader; thereafter squad leaders change the disposition of their squads to meet local conditions. Distances and intervals between individuals are decreased as visibility decreases. The squad leader or a designated member of the squad is responsible at all times for direction.

c. Squad column is used to advance in areas exposed to artillery fire or aerial bombardment. It is especially adapted to movement in woods, fog, smoke, or darkness, and to advance in readiness for action toward a flank. The wedge is especially adapted to unclarified situations when readiness for action in any direction is required; it is frequently used when emerging from cover or a defile. It is also adapted to taking

best advantage of cover on broken ground. It is the most general formation for traversing zones near the enemy but beyond effective rifle range of known hostile location. The skirmish formation is adapted to rapid dashes across open spaces, particularly shelled areas. It is employed when confronting hostile positions within effective small-arms range and in advancing the attack by fire and movement.

d. When the enemy is covering a certain zone across the line of advance with artillery fire (interdicting an area), it is frequently necessary to cross short stretches of exposed terrain by successive individual movement. This is particularly the case when crossing crests or passing through defiles. The squad leader prescribes an objective where the squad re-forms.

e. The second-in-command marches in rear of the squad, insures its orderly advances, and prevents straggling. He takes command in the absence of the squad leader.

f. Detours are permissible in order to take advantage of better lines of advance, provided they do not take the squad too far from its line of advance, create congestion, or consume too much time.

■ 219. FIRE FIGHT.—*a.* During the attack the squad seeks to advance rapidly and with minimum exposure; it does not open fire until fire action is necessary to cover its advance. Advantage is taken of intense bursts of fire by the artillery and infantry supporting weapons to effect rapid bounds from cover to cover. Rifle fire is not ordinarily opened at ranges beyond 400 yards.

b. The terrain and the effectiveness of hostile fire determine the method of advance. The squad advances as a unit when hostile fire is sufficiently neutralized; under fire it works forward by individual advances. The squad leader indicates the objective of each advance and issues further instructions under cover in rear of the new position.

c. It must be impressed upon all squad leaders that they can effectively give instructions to their squads only under cover (par. 225), and that it is very difficult to communicate instructions and insure their execution after the squads have occupied the firing position and come under hostile fire. The firing position is frequently a crest or rise and the cover position the lower ground just behind it.

d. In moving forward from position to position during an advance the squad halts under cover in rear of the new position. The squad leader creeps forward to observe and locate the target and to prepare the fire of the squad. He requires the men to observe the target with a minimum of exposure and gives his preliminary fire orders (sight setting and description of the target) to the squad or makes other arrangements as may be required by the situation (FM 22-5). He commands: **FIRE POSITION.** The squad then crawls to the position from which they can open fire on the target at the leader's signal. The squad leader then completes his fire order.

■ **220. FIRE DISCIPLINE.**—*a.* Fire discipline in the rifle squad is maintained by careful observance of the instructions relative to the use of the rifle in combat and exact execution of the orders of the squad leader. It requires care in sight setting, aim, trigger squeeze, close attention to the leader, and cessation or change of rate of fire on the squad leader's order or signal. Fire discipline also requires that upon release of fire control by the squad leader to individual skirmishers, each rifleman acts on his own initiative, selects his target, estimates the range, and opens and ceases fire in accordance with the situation.

b. During the fire fight the squad leader's attention is often absorbed in observation of the target. The second-in-command is specially charged with supervision of the squad fire discipline and may be assigned control over a part of the squad. Designated experienced privates supervise the fire discipline of the two or three men in their immediate vicinity.

c. For the usual limits of squads in offensive situations see paragraph 63.

■ **221. FIRE CONTROL.**—The platoon leader's attack order indicates the platoon objective. The squad leader selects as the squad target that part of the platoon target area corresponding to the position of his squad in the platoon and issues his fire order. He designates the target, announces the range, and gives the command for opening fire. He controls the fire as long as this is possible in combat. He seeks primarily to concentrate the fire of the squad on the target assigned

to his squad, or on the part of the platoon objective corresponding to its position in the platoon; it will, however, fire on other enemy elements of the platoon. When the squad leader can no longer effectively control the fire of the squad, he releases the fire control to the individual men through the command or signal, "At will." Skirmishers transmit orders along the front of the squad by word of mouth, stating the sources of the order. The squad leader participates in the fire of the squad when consistent with his command duties.

■ 222. FIRE DISTRIBUTION.—Each rifleman fires his first shot on that portion of the target corresponding generally to his position in the squad. He then distributes his remaining shots to the right and left of his first shot, covering that part of the target on which he can deliver accurate fire without having to change position. The amount of target each rifleman can cover will depend upon the range and the position of the firer. In some cases each rifleman will be able to cover the entire target with accurate fire. Fire is not limited to points known to contain an enemy; on the contrary, riflemen space their shots so that no portion of the target remains unmolested. This method of fire distribution is employed without command. It enables squad leaders to distribute the fire of their units so as to cause the entire target to be kept under fire. If a squad is employing this method of fire distribution and other targets appear, the squad leader announces such changes in the fire distribution as are necessary.

■ 223. RANGE.—Sight setting is based on range estimation. Ranges can be determined more accurately by sighting shots where the strike of bullets can be observed or when tracer ammunition is used. Caution must be observed in the use of tracers, as the point of origin of the fire is thereby revealed.

■ 224. TARGET DESIGNATION.—*a.* The target must be designated with such accuracy as to be unmistakable and by a method so simple as to be understood readily under the conditions of combat. Complicated methods are avoided.

b. When the target cannot be unmistakably pointed out by direct indication, a prominent object in the foreground as near as possible to the target is selected as a reference point. The

target is located by extending the arm with fingers vertical and determining the number of finger breadths covered by the interval between the reference point and the target; example, "Church steeple straight to the front, two fingers left at the fence corner, a machine gun."

■ 225. FIRE ORDERS.—*a.* The detail included in fire orders is dependent upon the time available, the cover, and the character of the target.

(1) If extreme haste is required or the target at close range and unmistakable, fire orders may be limited to the command COMMENCE FIRING.

(2) Detailed fire orders are not practicable when the squad occupies an exposed position. Fire control in such case must frequently be released to the individual skirmishers.

(3) Wherever practicable, preliminary fire orders are communicated under cover. The target can sometimes be described before the skirmishers occupy the fire position. When the target cannot be easily identified it may be necessary to have the men creep sufficiently close to the crest or other mask to have a view over the foreground and insure recognition. The fire order is completed when the men have signified recognition (signal "ready").

b. For examples of fire orders see FM 23-5 and FM 23-10.

■ 226. FIRE AND MOVEMENT.—*a.* After the fire fight commences, the squad must carry out its movement in close co-ordination with its own fire and that of adjacent squads and supporting weapons.

b. The bounds of movement are defined as far as practicable by the terrain features affording cover. On coverless terrain, resort must be had to long bounds. Long bounds require overwhelming superiority of fire. Leaving efficient cover to make a short advance in the open serves only to increase losses without a commensurate gain.

c. Squad advances may take place by rushes of the entire squad, rushes by groups of several men, or by advance of individuals. Rushes under fire are ordinarily resorted to only when moving from cover to cover across short stretches of terrain. Periods of neutralization of hostile resistance by strong concentration of supporting fires favor rushes by larger

fractions. Infiltration of individuals along defiladed approaches, where practicable, constitutes the most effective method of advance where marked superiority of fire is lacking.

d. The squad intensifies its fire during periods when any part of it or of an adjacent squad is in movement. It seeks to time its fires in preparation for an advance so as to combine them with the bombardments of artillery or aviation, the fire of supporting weapons, and adjacent units. During periods when no movement is in progress or impending, it reserves its fires and conserves its ammunition and fighting power.

e. The squad leader transmits orders along the squad front by means of signals and personal contact either by himself, through the assistant squad leader, or by designated men.

■ 227. SUPPORT SQUAD.—a. Before the attack, the squad leader of a squad in support informs his men of the situation and proposed action of the platoon. He advances his squad in accordance with the orders or signals of the platoon leader or platoon sergeant, keeping it under cover as far as practicable, and preventing it from merging with the assault squads.

b. When directed to reinforce the attacking squads, he points out to his men from cover the positions of the enemy and the attacking squads. He indicates the part of the line to be reinforced and prepares the squad for a rush (see FM 22-5), extending intervals if necessary.

c. If ordered to envelop a definitely located hostile resistance, the squad leader conducts reconnaissance to locate a departure position for the attack and the best available covered route of approach thereto. He then moves the squad, preceded when necessary by scouts, to the position selected. He endeavors to overwhelm the enemy by opening surprise fire and delivering the assault from an unexpected direction.

■ 228. ASSAULT.—The assault is delivered on orders, on signal of the platoon leader, or on the initiative of the squad leader. It is delivered at the earliest moment that promises success and without regard to the progress of adjacent squads. The squad approaches the hostile resistance as close as practicable to the supporting fires, and when the fires are lifted, dashes into the enemy position and charges the defenders

with the bayonet. Against an entrenched enemy, the final charge may be preceded by a hand-grenade volley. After a successful charge the squad leader reorganizes his squad on the captured position and prepares for a further advance. When necessary, ammunition is collected and redistributed; losses in leaders are replaced.

■ 229. DEFENSE.—*a. General.*—(1) The squad in the combat echelon is usually reinforced by an automatic-rifle team.

(2) The instructions to the squad leader cover the following:

Information relative to the enemy.

Exact course of the main line of resistance.

Squad defense area.

Sector of fire and ranges to prominent features in the foreground.

Arrangements for mutual support with adjacent squads.

Clearance of field of fire.

Intrenchments and obstacles.

Camouflage.

Position and mission of adjacent squads and supporting weapons.

Conditions under which fire is to be opened.

Prearranged signals.

(3) Usually the attached automatic rifle covers the entire fire sector of the squad. It is so emplaced as to flank the front of adjacent squads. The riflemen usually occupy positions somewhat to the rear and flank of the automatic rifle emplacement and preferably about 30 yards from it. They are prepared to fire through the interval between automatic rifles and to move into action by counter assault whenever a penetration of the interval to their front may impend.

(4) The squad takes as secondary fire sectors the sectors of adjacent units within close range.

(5) Alternate positions are selected for the automatic rifle. Supplementary positions are prepared for the riflemen to be occupied for protection against flank attack in case of hostile penetration of adjacent sectors. Alternate and supplemen-

tary positions are connected with the primary position by shallow communication trenches where practicable.

(6) If time permits, the squad leader examines his position from the direction of the enemy. In any event he notes the most favorable routes of approach for the enemy toward his position.

(7) Ranges are determined to the most important landmarks in the squad fire sector so as to expedite the opening of fire.

(8) The squad leader takes position where he can best observe his squad area and exercise control over all elements of his command. He assures continuous surveillance of his fire sector either by his own personal observation or by the assignment of a member of his squad as observer.

(9) As soon as the squad leader has determined the position of each member of the squad, intrenching is started. At first, this work consists of improving fields of fire and digging and camouflaging fox holes and shallow communicating and connecting trenches. Defensive works are continuously developed and perfected as long as the position is occupied.

(10) Camouflage material is assembled and laid out ready for use before the work of intrenching begins. A reasonably well camouflaged shelter is more valuable than a stronger field work that can be easily recognized by the enemy.

(11) As time and other duties permit, the squad leader prepares a rough sketch of the squad's sector of fire showing prominent terrain features within the sector with the estimated ranges thereto.

(12) The squad seeks to make hostile airplane reconnaissance ineffective by avoiding unnecessary movement and by concealment and camouflage.

b. Conduct of defense.—Upon warning of an impending attack the squad leader directs his men to their positions immediately prepared to engage targets which appear in his assigned sector. Until the enemy arrives within close range, the squad avoids any movement that would disclose its dispositions. Automatic rifles open fire when enemy riflemen arrive within close range and present a remunerative target. Frequently the enemy will bombard the position before he attempts to take it, pressing his assault as soon as the bom-

bardment ceases. In general, the success of the defense depends upon each squad group defending to the utmost in place. Should enemy riflemen enter the squad area, they are driven out by fire and the bayonet. The stubborn defense in place by front-line units breaks up enemy attack formations, disrupts his planned fires, and makes him vulnerable to counterattacks by higher units.

c. Defense against tank attack.—(1) Action in case of tank attack must be carefully prearranged. Riflemen and automatic riflemen generally take cover against the attack of heavily armored tanks. They must also move or occupy cover in such a way as to unmask the field of fire of friendly anti-tank guns. They utilize terrain impracticable for the movement of tanks or take cover in deep fox holes during the passage of the tanks and then reoccupy their firing positions.

(2) Track assembling may be attacked successfully with prepared high explosives. Isolated tanks, particularly if immobilized, can frequently be effectively attacked from the rear or from their blind angles.

(3) Under all circumstances Infantry following the tanks are fired upon at the earliest possible moment with a view to separating them from the tanks.

■ 230. **WITHDRAWAL.**—When the squad is ordered to withdraw, the movement to the rear is coordinated with adjacent units and supported by the fire of friendly troops. The route over which the men are to retire is designated and the squad assembled at some point in the rear. The men retire from cover to cover, taking advantage of defiladed routes. The withdrawal is screened, as far as possible, from enemy observation. The squad leader withdraws with the last element of the squad, usually the automatic rifle team.

■ 231. **PATROLS.**—*a.* The squad or fraction thereof frequently acts as a patrol. Patrols are assigned either security or reconnaissance as their primary missions.

(1) Reconnaissance patrols are used primarily to secure information, maintain contact with the enemy, or observe terrain. They do not engage in combat except when necessary to the execution of their mission. They are not bound locally to

the unit which they serve, but regulate their movements and position with reference to their objective.

(2) Security patrols have the mission of providing security for a larger command. The execution of this mission usually involves the possibility of combat. Security patrols regulate their movements with reference to the unit to be secured.

b. Patrols assigned to missions involving combat are given a strength and means adequate for the combat action anticipated.

■ 232. RECONNAISSANCE PATROL.—a. Reconnaissance patrols are usually small, consisting of a leader and two or three men. A reconnaissance patrol is not diverted from its mission by the opportunity to capture prisoners (unless the prisoners can furnish the desired information). It avoids unnecessary combat and accomplishes its mission by stealth.

b. Orders to the patrol leader state the mission, objective, general routes to be followed, the outpost or other security elements through which the patrol will pass, time of return, and place where messages are to be sent or the patrol is to report. If the patrol is to return at a point different from its exit, friendly troops at that point must be informed.

c. Prior to departure, the patrol leader studies a map or the terrain and selects a suitable route. He designates alternate leaders, informs the men of the situation, mission of the patrol, terrain to be crossed, individual tasks, special signals, and the assembly point in case the patrol is forced to separate. He inspects the patrol to insure that arms and equipment are carried so that they will not glisten or rattle and that no letters or documents are carried. On leaving the friendly lines, the patrol leader informs the nearest outguard or front-line unit of his proposed route and obtains available information concerning the enemy and friendly patrols operating in the vicinity.

d. A reconnaissance patrol usually advances by bounds from one covered position to another (fig. 9). Bounds are short near the enemy. When approaching a dangerous position, the patrol leader sends a scout ahead, while the others cover his advance. Upon reaching the position, the scout signals "Forward" if all is clear and remains in observation while the rest of the patrol advances.

e. (1) In searching woods the patrol moves in a thin skirmish line. The interior of the woods is carefully reconnoitered by successive advances to clearings or trail junctions.

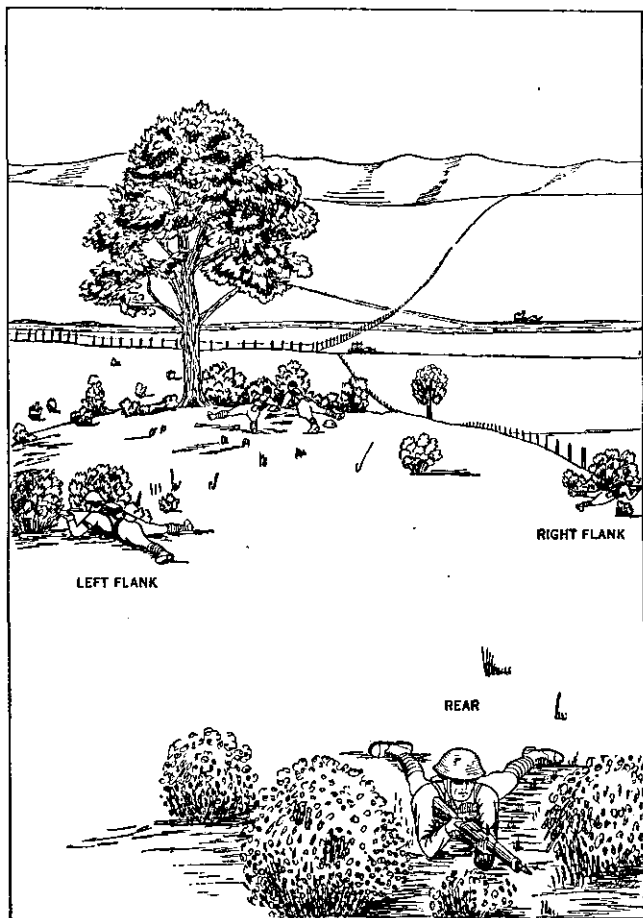


FIGURE 9.—Distribution of patrol halted in observation.

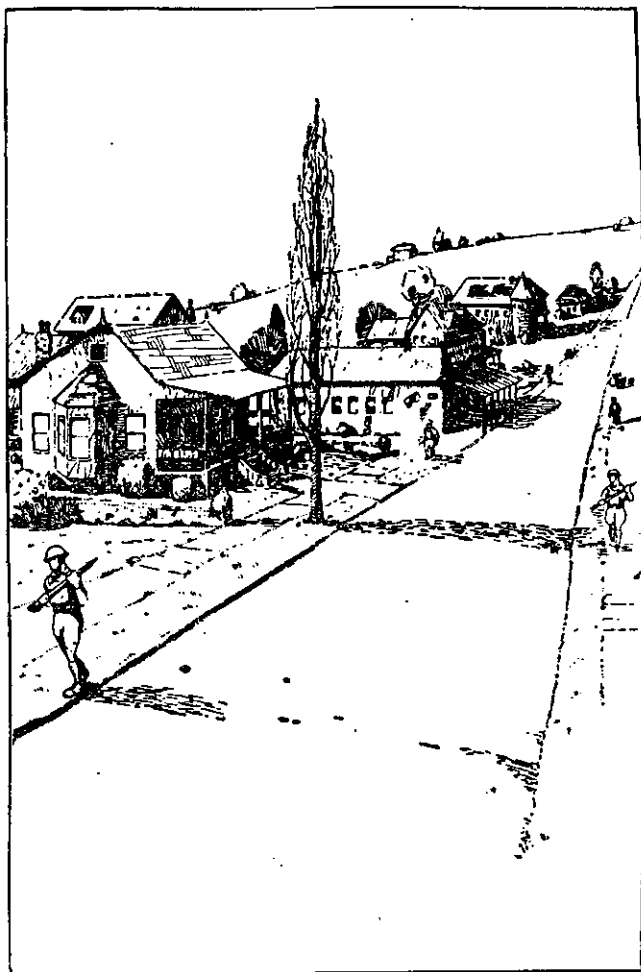


FIGURE 10.—Formation of patrol passing through village.

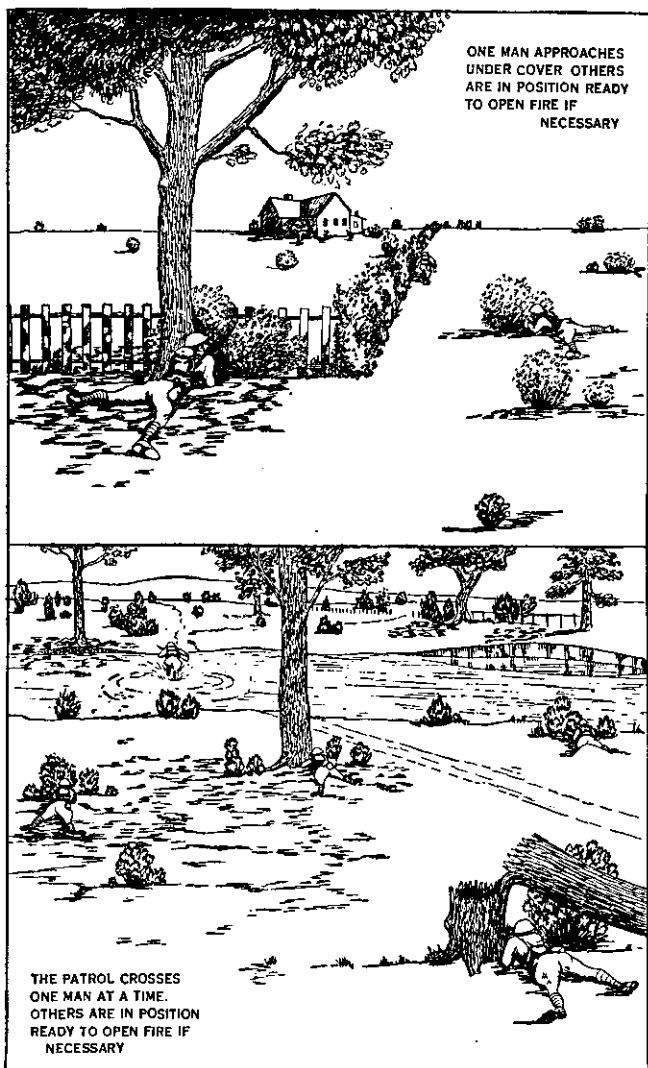


FIGURE 11.—Method of approaching house and of crossing streams.

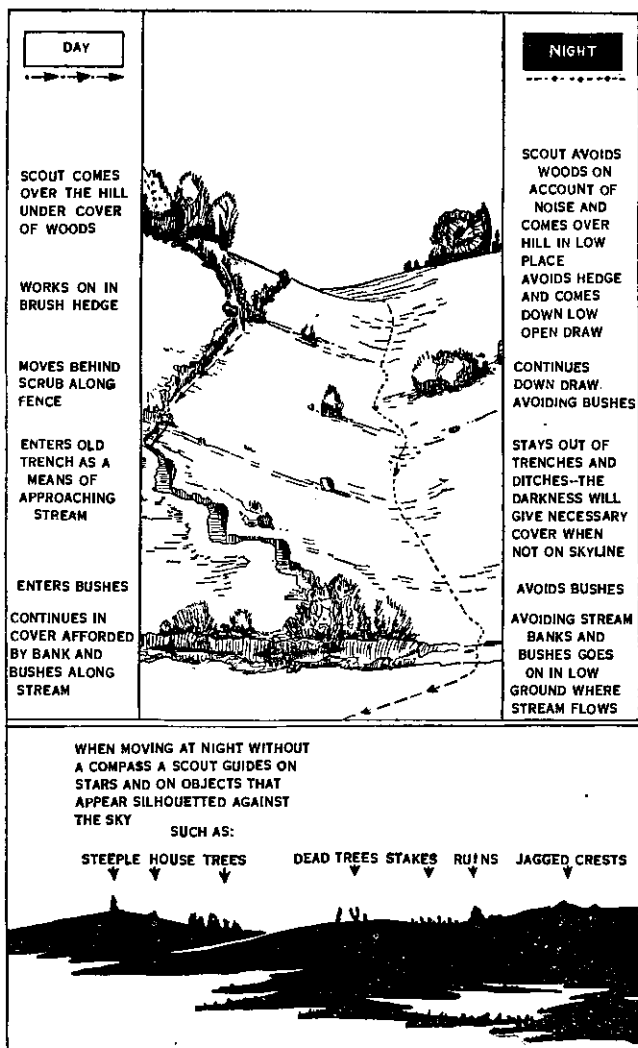


FIGURE 12.—Difference between correct routes over same ground by day and by night.

(2) A patrol usually moves along the heights on one or both sides of a ravine or cut. If necessary to pass through a defile, the patrol is staggered and keeps close to the sides (fig. 10). If the distance is short, a scout is sent to the far side to observe; the remainder of the patrol does not enter the defile until he signals "Forward." If the distance is too great or observation restricted, a scout moves by bounds at least 150 yards ahead of the patrol.

(3) Before a stream is crossed, the opposite bank is carefully observed. A scout crosses first; the others cover his advance and cross after he has made a brief reconnaissance (fig. 11).

(4) On approaching a cross road, a patrol halts and sends scouts to the flanks to reconnoiter the side roads. The patrol advances when all is reported clear.

f. (1) By day, patrols are usually controlled by oral orders and prescribed arm signals. By night, they are controlled by voice and by prearranged sound signals.

(2) Success in night patrolling depends largely upon ability to move silently and maintain direction and control. Before starting, the patrol leader determines the compass direction and location of prominent objects near his route. In planning the route, he endeavors to avoid features which hinder movement. Dispositions are similar to those adopted during daylight, but distances and intervals are reduced (fig. 12).

g. Prearranged signals audible for only a short distance (rustling of paper, snapping the edge of a matchbox with the finger nail, tapping helmet) are used to control the patrol; oral orders or whispering are limited to emergencies. Signals to stop the patrol and move it forward are often given by the leading scout but may be given by any member in an emergency. Whoever halts the patrol is responsible for starting it again. A check-up signal, given by the patrol leader to verify the presence of all men, is answered according to a prearranged plan.

h. If a patrol is attacked, the man who first notes the danger calls out "Front," "Right," "Left," or "Rear." All members face toward the man attacked. The men on the flanks advance a short distance straight ahead and then close on the enemy from the flanks. The patrol leader and the men with

him rush the enemy. During the combat, the members of the patrol repeat their recognition signals. If necessary, the leader designates a man near him to stay out of the fight.

■ 233. SECURITY PATROLS.—*a. General.*—A squad or portion thereof may be called upon to act as a point or as a flank patrol of a column on the march or in combat. The point of an advance guard moves along the axis of advance; it prevents an enemy on the route or in the immediate vicinity from opening surprise fire on troops in rear. The point precedes the advance party by a distance varying with the nature of the terrain, but usually not exceeding 300 yards. The squad is so disposed as best to permit control by the squad leader, reduce vulnerability, and facilitate prompt fire action toward the front or either flank. The squad frequently marches on each side of the road in double column of file. The point fires on all hostile elements within effective range. When unable to drive off the enemy, it holds its position and covers the action of the advance party. The presence of a distant enemy beyond effective rifle range is reported by signal. The point observes toward the front and flanks but executes no reconnaissance on the flanks of the route of march. When the column halts, the point sends forward one or more observers.

b. Point of a rear guard.—The dispositions of a rear point are similar to those of a point of an advance guard. The rear point stops to fire only when the enemy action threatens to interfere with the march. It signals the rear party commander at once when the enemy is observed. The rear point receives no assistance from other troops. When the enemy presses closely, other troops take up a position farther to the rear; the rear point, when forced back, withdraws to a flank so as to unmask their fire.

c. Flank patrol.—(1) The squad leader is given orders either to go to a designated locality, remain for a specified time, rejoin the column, or to march along a certain route. When observed enemy elements are reported by signal or messenger.

(2) A flank patrol of a column on the march moves so as to protect the column from hostile fire within midranges.

It investigates cover likely to conceal hostile elements and conducts observation from commanding terrain features.

(3) Units whose flanks become exposed in combat frequently detail security patrols for flank protection. Such patrols coordinate their position and movements with reference to the situation of the unit to be secured. Information of enemy activities and movements of adjacent units observed are reported as required by the instructions of the commander under whose orders the patrol is operating.

■ 234. OUTGUARD.—An outpost line of observation is constituted by outguards varying in strength from four men to a platoon. Each outguard is given a definite sector to observe. It posts three reliefs of either one or two sentinels each. The outguard commander selects the sentry posts. The posts should permit observation to the front and flanks and be easily approached by covered routes from the rear. At night it may be necessary to change the position of the sentinels. During the day they are placed primarily to observe; at night to listen. Any talking at night must be in whispers. Members of the outguard not posted as sentinels rest nearby under cover but must remain fully equipped and close to their weapons. If the outguard has been directed to resist a hostile attack, the outguard commander causes combat emplacements to be dug.

■ 235. COMBAT OUTPOSTS.—*a.* The squad (or fraction thereof) on duty as combat outpost screens and protects the rifle company in the combat echelon. It is frequently reinforced by an automatic rifle team. It is normally posted during the day within midrange from the main line of resistance. It may have several alternative positions. It opens fire at long range on an advancing enemy. On close approach of the attacking troops it withdraws from its position. Routes of withdrawal are so selected as to avoid masking the fire of the combat echelon.

b. At night the combat outpost may be drawn in closer to covered troops, and establishes listening posts to warn the front-line garrisons of the approach of hostile raiding or attacking parties.

SECTION II

AUTOMATIC RIFLE SQUAD

■ 236. REFERENCES.—*a.* For composition, armament, and equipment see appendix II.

b. For details relative to mechanical functioning and technique of fire see FM 23-15.

■ 237. MOVEMENT.—During the approach march, the automatic rifle squad is the principal platoon weapon for anti-aircraft defense. The dispositions and movement of the squad in extended order are generally as prescribed for the rifle squad in FM 22-5; the integrity of teams is constantly maintained. In attack, the squad usually moves under the direction of the platoon leader. It follows the advance of the platoon within close range, taking advantage of cover to reach positions where they can be readily put into action. (For use of the squad in isolated combat of the platoon see par. 247*d*.)

■ 238. FIRE POSITIONS.—The position should afford a clear field of fire over the sector assigned the automatic rifle by the squad leader. Whenever practicable, cover should be available in rear of the fire position for the shelter of the automatic rifle team and the weapon when not firing. The fire position of the automatic rifle should, when practicable, be separated from adjacent automatic rifles by a distance of at least 30 yards.

■ 239. OCCUPATION OF FIRE POSITION.—Whenever practicable, the automatic rifle team initially occupies the cover position; the automatic rifleman moves to the fire position and observes and selects the target. On the automatic rifleman's order, the assistant automatic rifleman takes position to assist in the service of the piece. The team (except the automatic rifleman) occupies the cover position at all times when not firing. The automatic rifleman remains in observation.

■ 240. FIRE DIRECTION AND CONTROL.—The platoon leader assigns a general position area and a target or a target area to the squad leader. The squad leader assigns approximate positions and targets or sectors of fire to the automatic rifle

team. Fire sectors are assigned where definite targets cannot be definitely located or the teams are too widely separated for target designation by the squad leader. Where a line target is designated, fire may be distributed between the teams by the designation of a delimiting point in or near the target.

■ 241. ATTACK.—*a.* The automatic rifles constitute a reserve of fire in the hands of the rifle platoon leader. They are put into action when conditions develop especially favoring their employment. Difficulties connected with ammunition supply restrict the use of these weapons to situations where their support is vital to the success of the platoon.

b. Situations especially favoring the use of the automatic rifle are offered where an open flank permits the establishment of a base of fire for the support of the movement of the rifle squads. Such a situation may result from the development of the rifle company over a wide front or from the separation of the platoon from contact with adjacent units in the course of battle. Gaps in depth make available flanking fields of fire which facilitate the full development of the fire power of the automatic rifles.

c. The squad is preferably put into action on a flank of the platoon. It intensifies its fires during periods when any part of it or any squad of the platoon or adjacent units is in movement. It seeks to time its fires so as to combine them with the bombardments of artillery and aviation, the fires of supporting weapons and adjacent units, and thus contribute to creating the conditions most favorable for the advance of the platoon. During periods when no movement is in progress or impending, it reserves its fires and conserves its ammunition and its fighting power.

■ 242. DISPLACEMENT.—*a.* After the squad engages in the fire fight, it carries out its movement in close coordination with its own fire and that of the rifle squads and the supporting weapons. Movement is usually effected by team echelons and by bounds from successive fire positions. Teams execute rushes as a unit, by groups of several men, or by individuals. The automatic rifleman usually leads the rush.

b. When a position no longer affords an effective field of fire and other factors of the situation permit, the squad leader

orders a displacement. He designates the order of movement of the teams and when practicable moves forward to reconnoiter the new position area. He locates the approximate fire position for each gun and when practicable a cover position in proximity thereto. He then signals or otherwise directs the teams to move to the cover position.

c. Teams commence the rush from the cover position and halt in the new cover position. The automatic rifleman usually leads the rush.

■ 243. DEFENSE.—The automatic rifles form the principal fire elements of the rifle platoon in the defense. Where an additional automatic rifle is made available, the squad forms three teams. The teams generally occupy separate emplacements so located as to cover the entire sector of fire of the platoon. Where the platoon covers an exceptionally wide front, the automatic rifles may be assigned flanking missions, leaving frontal field of fire to the riflemen. Wherever practicable, alternate emplacements are selected for each automatic rifle.

■ 244. ANTIAIRCRAFT FIRE.—Whenever practicable, automatic rifle squads assigned to antiaircraft missions are employed as a unit. In shelter, the automatic rifle squads of the company may be united under the direct control of the company commander in order to obtain concentrated fire effect. Where several automatic rifles are employed under common fire control, fire distribution is prearranged; the leading or right airplanes, the next succeeding to the rear or left are assigned to designated teams.

SECTION III

RIFLE PLATOON

■ 245. REFERENCES.—a. For composition, armament, and equipment see appendix II.

b. Extended order drill of the platoon is covered in FM 22-5.

c. All members of the rifle platoon are trained in the use of the rifle, automatic rifle, bayonet, and signal projector.

■ 246. **APPROACH MARCH.**—*a.* Prior to the fire fight, the movement of the platoon is regulated on a base squad. The platoon leader assigns the direction of advance as described in FM 22-5 to the leader of the base squad. When the platoon leader desires to control the advance personally he orders the base squad, "Follow me." During the absence of the platoon leader on reconnaissance the platoon sergeant leads the platoon and maintains sight contact with the platoon leader or maintains contact through a connecting file.

b. Prior to the assignment of an attack objective, the platoon advances in approach march with squads disposed in a manner best adapted to the terrain to be crossed. The platoon leader orders the initial distribution and studies the terrain with a view to advancing his squads by routes least exposed to observation from enemy localities and to maintaining control during the advance. He must seek to determine at all times what areas are visible from enemy terrain.

c. (1) According to the situation and the terrain, the rifle platoon may be distributed in one, two, or three echelons. Echelons may be successive or abreast. The automatic rifle squad normally moves in rear of the center of the leading echelon. The distribution of the platoon antiaircraft fires is carried out as prearranged by the platoon leader. The platoon leader and the automatic rifle squad leader designate lookouts to observe in all dangerous directions (par. 208).

(2) The mission, terrain, and enemy fire are the principal factors influencing the dispositions adopted. Dispositions are varied by command or order throughout the approach march as required by the situation. The leader seeks to screen his unit from hostile observation, move it so as to evade or minimize hostile fire effect, and retain the greatest practicable degree of control over all the platoon elements.

d. (1) Movement in approach takes place in a series of bounds. The platoon is assigned an initial movement objective by the company commander, and the platoon leader designates the objective to the leader of the base squad. This objective is not necessarily that designated by the company commander but may be an intermediate terrain feature. The platoon leader normally precedes the platoon by distances sufficiently great for effective reconnaissance of the line of ad-

vance and the location of shelled and gassed areas and areas exposed to hostile observation. On approaching a heavily shelled area he detours the platoon around it or takes advantage of lulls in the hostile fire to send it to its next objective by individual rushes controlled by squad leaders. The squads re-form on the next platoon objective.

(2) The platoon sergeant usually moves behind the center of the leading echelon. He controls the movement of the automatic rifle teams in accordance with the plan of the platoon leader, and supervises and controls the advance of the platoon when the platoon leader absents himself on reconnaissance or on summons from the company commander. When the platoon is not the base platoon, he insures conformity of the base squad with the movement of the base platoon.

(3) The platoon guide moves in rear of the platoon and keeps in touch with the progress of adjacent units. He checks straggling and is responsible that the platoon leader's orders with reference to use of cover, maintenance of quiet and orderly advance, and other disciplinary measures prescribed for the approach are carried out. He quickly informs the platoon sergeant or platoon leader of any unusual event on the flanks or rear of the platoon which alter the plan for the approach.

(4) A platoon messenger accompanies the platoon leader.

e. In uncovered movement of the platoon, the platoon leader covers his advance by scouts and regulates their movement by the assignment of successive objectives. The scouts precede the platoon by sufficient distance to insure its protection against enemy fire within midrange. When the situation indicates probable contact with enemy elements, the platoon leader holds the platoon under cover and awaits reconnaissance of the assigned objective by the scouts. When they have reached the objective, the platoon leader moves the platoon to the line of the scouts and again sends them forward to the next objective. During the movement of the scouts, he posts himself so as to hold them under observation and maintain control over his platoon. When the platoon must pass through small woods, villages, or defiles, the platoon leader designates the far edge of the woods or the exit of the

village or defile as the next objective. The method of advance adopted by the platoon leader varies in accordance with the need for rapidity of movement and security against hostile surprise fire.

f. When some of the scouts are caught under fire in unfavorable terrain, the platoon leader pushes forward reconnaissance of undeveloped portions of the platoon zone in order to clear up the enemy situation before involving the bulk of his unit in the fire fight. He designates squad positions for the attack without regard to the positions of their scouts. Scouts join the squad nearest them unless otherwise directed by the platoon leader. If one or both of the flanks of the platoon are open, he provides for flank security by means of small patrols.

g. The company commander usually informs the platoon leader whether the conditions of movement are to be regarded as covered or uncovered. In case of doubt, dispositions as for uncovered movement are taken.

h. For frontages of the platoon during the approach march see paragraphs 62 and 63.

■ 247. ATTACK SITUATIONS.—*a. General.*—The action of the platoon in attack varies according as the platoon is attacking with supported flanks or has open flanks without support within midrange from adjacent units. Situations of the first class are normal in the initial attack of a continuous resistance. Situations of the second character often occur in the service of security and reconnaissance and in the combat which develops after the break-up of a continuous resistance. Such situations occur where a leading company in advance guard has developed and extended over the front of the advance guard; when the platoon is a leading element of the company in uncovered movement; and where in the attack of a continuous resistance open flanks are created by inequality in the advance of the platoon and adjacent units.

b. Attack with supported flanks.—For attack against continuous resistance the platoon ordinarily forms in a company assembly area. Platoons in the leading echelon are assigned assembly areas and objectives, the direction of attack, and the line of departure.

(1) Upon receipt of the company attack order, the leader of a platoon in the attack echelon observes the ground over which the platoon is to attack and formulates his plan of action. Where a terrain feature affording cover exists between the assembly area and the objective assigned by the company commander, the platoon leader selects such feature as his first objective. Otherwise the objective assigned by the company commander is the first platoon objective.

(2) The platoon leader assembles noncommissioned officers in a covered position from which the platoon objective can be seen. He informs them of any new enemy information, the company objective, missions of adjacent troops, and support of heavy weapons and artillery. He then outlines his own plan of action, including the platoon mission, dispositions, initial and subsequent objectives, hour of attack, security measures, and his own position and contemplated movement. He makes certain that all squad leaders understand his order, having them repeat it back when necessary. Upon the receipt of these instructions, the squad leaders return to their squads, and the platoon moves directly to the attack at the appointed hour or prearranged signal.

(3) In cases where the company attack order is issued at a distance from the attack objective, it may be necessary to cover the movement of the platoon by scouts, and to control the advance by designation of successive objectives as in the approach march.

(4) The platoon organizes its attack either in the company assembly area or on a terrain feature affording cover in advance thereof.

(5) The rifle squads of the platoon are employed generally as follows:

(a) When the attack is over open, level ground, the platoon usually attacks straight to the front with all rifle squads in one echelon. This method of attack quickly develops the full fire power of the platoon. It has the disadvantage of leaving no force available to the platoon leader for reinforcement, flank protection, or maneuver.

(b) When cover permits, a deployment with two squads in the leading echelon and one in support generally offers the most advantageous distribution in the attack of the platoon

in company. A distribution with one squad in the leading echelon and two in second echelon is especially adapted to contact operations. (See *d* below.)

(c) When the platoon attacks with supported flanks, the automatic rifle squad ordinarily follows in rear of the leading echelon at the disposition of the platoon leader until the advance of the platoon reaches close range of the hostile resistance. In moving to its place of employment, it takes advantage of the most favorable route of advance in the platoon zone and may temporarily move through adjacent zones. A rifle squad in support advances as directed by the platoon leader. It is put into action where resistance seems to be weakening, is employed to envelop hostile resistance, or is sent in to fill gaps between the squads of the attacking echelon.

(6) The platoon leader observes the development of the enemy fire and location of the main enemy groups. He notes the point where most progress is being made by his attacking echelon with a view to engaging his support squad at the point of least resistance. When opposed by ineffective resistance, he drives his platoon rapidly ahead regardless of the lack of progress on his flanks.

(7) The platoon leader uses his automatic rifles whenever practicable to support the advance of the platoon within close range. Where practicable he sends them forward to an advanced position on a flank, from which they can support the movement of the rifle squads to a covered position at the closest possible range from the enemy; or puts them into action against resistances on a flank from positions in rear of his attacking echelon. Except in emergencies, he does not merge the automatic rifles with attacking rifle squads.

c. Assault.—(1) The assault may take place either on the initiative of the platoon leader or as part of a general assault of larger units. In either case the assaulting echelon follows the supporting fires at the closest possible distance. In the first case the signal for the lifting of supporting fires is given by the platoon leader as prearranged. A general assault is delivered at an hour fixed by higher commanders or on prearranged signal.

(2) Against an entrenched enemy a grenade volley precedes the final rush. The automatic riflemen join the rifle squads

of the assaulting echelon, delivering automatic fire at point-blank range.

(3) On effecting a penetration of the defensive position the platoon reorganizes as rapidly as possible for further advance. The platoon does not delay its further movement to clean up resistances but leaves them to be reduced by following echelons. Every effort is made to press the attack without pause through the depth of the position.

d. Isolated attack.—(1) When a platoon attacks with unsupported flanks the attack is usually prepared by placing the automatic-rifle squad well on the flank of the platoon where it constitutes a base of fire to cover the platoon advance to the closest possible distance from the hostile resistance. It moves forward to an advanced position as soon as its fire is masked. In this situation the platoon frequently has an attached 60-mm mortar squad which supports its attack. A situation with one or both flanks open may develop in the attack of a continuous hostile position as the result of inequality in the advance of the platoon and adjacent units on its flanks.

(2) In the majority of cases the attack of the platoon acting alone (attacking an isolated resistance) involves the reduction of a tactical locality, such as a nest of hostile weapons, a piece of ground affording an advantageous fire position or good observation, a hedge, houses, or other locality of limited dimensions. The platoon leader acquaints himself with the situation by personal reconnaissance before committing the platoon to any line of action. He seeks, first of all, to locate the flanks of the resistance by sending out small patrols (2 or 3 men).

(3) The platoon leader's plan habitually includes pinning the enemy to the ground by frontal and flanking fire with a view to immobilizing him and facilitating an envelopment. Elements from the second echelon are brought up on one or both flanks to close with the enemy or give fire support. As far as practicable the movement and fire of frontal and enveloping elements are synchronized so as to concentrate their action against the hostile resistance.

(4) If it is impossible, on account of flanking fire from other hostile localities situated to the flank or rear, to reduce a tactical point by enveloping action, the platoon leader,

under protection of the fire of the platoon and of supporting weapons, seeks to build up an assaulting force at close range to the hostile resistance. In such case the automatic rifles are often best utilized to neutralize the cross fires of the hostile flanking elements.

(5) During the attack the platoon sergeant assists the platoon leader in control of the platoon. He usually stays near the squad in second echelon until they are engaged. He directs the movement of the automatic-rifle teams until they are ordered into firing position by the platoon leader. When the entire platoon is engaged, the platoon sergeant usually posts himself behind that portion of the attacking echelon most distant from, or most difficult of control by, the platoon leader. From this position he observes the platoon leader and sees that the platoon leader's plan is being carried out.

(6) The platoon guide keeps in touch with ammunition expenditure and takes every opportunity to have it replenished. He is especially charged with observing the situation on the flanks and rear. He checks straggling and performs such other duties as may be directed by the platoon leader or the platoon sergeant.

e. Support platoon.—(1) A support platoon moves in accordance with instructions of the company commander, making its displacement at his direction or following the attacking echelon by bounds. A support platoon usually leaves cover only after the leading echelon has left the cover ahead. The platoon leader holds firm control over his unit and takes action to prevent its merger with the leading echelon.

(2) During the advance, the leader of a support platoon constantly observes the action of the leading echelon and the situation on the flanks of the company. He is prepared to put his platoon in action wherever it may be required, and makes tentative plans therefor.

(3) It is the special duty of the support platoon to provide antiaircraft protection for the company. It places its automatic-rifle squad in position for antiaircraft fire at every halt.

(4) When its company is making an isolated attack, the platoon is put into action on the flank of the leading echelon; scouts precede the platoon in its movement to a designated

departure position. The scouts locate and reconnoiter the first objective of the platoon advance. This is frequently the line from which the platoon launches a flank attack against a resistance in front of the leading echelon.

■ 248. DEFENSE.—*a. General.*—(1) A front-line platoon in defense is frequently reinforced by a light mortar squad.

(2) The mission assigned the platoon leader covers the following points:

(a) Exact course of the main line of resistance.

(b) Platoon defense area and sector of fire assigned to the platoon.

(c) Emplacements and sectors of fire of supporting machine guns and dead spaces in bands of machine-gun fire in the platoon sector.

(d) Instructions relative to the development of the position (camouflage, combat emplacements, accessory defenses, clearing of the field of fire, dummy works, antitank defenses).

(e) Instructions as to mortar and automatic rifle fires in accordance with the battalion fire plan (when required by the situation).

(f) Arrangements for mutual support by fire with adjacent platoons.

(g) Emplacements and missions of supporting antitank weapons.

(h) Artillery fires in the platoon fire sector.

(i) Information as to location and activity of detachments operating in advance of the main line of resistance.

(j) Conditions under which fire is to be opened in case of attack.

(k) Commanders authorized to call for final protective fires.

(l) Prearranged signals.

(m) Ammunition supply.

(3) The platoon leader distributes the assigned platoon fire sector to the rifle squads. He fixes the location of automatic-rifle emplacements so as to cover the assigned fire sectors and provide mutual flanking support. He assigns fire and cover positions to the rifle squads (par. 229a). He checks the arrangements of squad leaders for observation and com-

mand and verifies their correct understanding of their fire sectors. He assigns a firing position and targets to the 60-mm mortar so as to cover dead spaces in the bands of machine-gun fire and to bring down fire on any cover within midrange under which hostile forces can assemble for attack. He designates alternate positions for the automatic rifles, the mortar, and the rifle squads. He selects as command post a location which will afford effective observation over the platoon area, its sector of fire, and the areas of adjacent platoons, and which will facilitate his movement to any part of the platoon area where his presence may be required. He posts an observer at or in the close vicinity of his command post and provides reliefs so as to maintain continuity of observation by day and by night.

(4) Communication with the company commander is by runner.

b. Support platoon.—The platoon leader takes the necessary measures for the observation of the foreground of his position and distribution of his units into reliefs. Support platoons extend in depth the dispositions of the leading platoons. Squads are disposed usually with one or more alternate positions so as to offer resistance toward a flank and act by fire or counterassault against enemy elements penetrating the front line. Automatic rifles take positions for antiaircraft fire affording the best available defilade. They are assigned alternate positions for ground fires. Fire control of automatic rifles is prearranged by the platoon leader or the platoon sergeant. In close terrain, a support platoon or elements thereof may be held mobile for counterattack. Plans are made for one or more lines of action.

■ 249. CONDUCT OF DEFENSE.—*a. General.*—(1) The fire of front-line platoons is held until the attacker comes within close range and hostile artillery lifts or ceases its fire. Premature opening of fire reveals the defensive dispositions and permits the neutralization of the defense by the hostile artillery before the infantry attack.

(2) Any enemy elements which succeed in breaking into the platoon position are attacked by fire or counterassault by rifle groups and destroyed or ejected in hand-to-hand combat.

(3) In case of penetration of an adjacent platoon area, squads or parts thereof are moved to alternate emplacements and form a line of resistance toward the exposed flank. The platoon holds its own area against a flank attack but does not move any of its elements into the adjacent area.

(4) The platoon sergeant and the platoon guide take post where they can best assist the platoon leader. Usually one takes a secondary observation post, and the other watches the platoon leader's signals to the squads and sees that they are understood and carried out.

b. Security missions.—Missions of the platoon may comprise occupation of detached posts in advance of the main line of resistance (or when a regular outpost is established, in advance of the outpost position); constituting an outpost support; and, exceptionally, operating as advance (rear) party of an advance (rear) guard.

(1) Advanced posts conduct delaying action (par. 281) against enemy attack. They hold positions giving long-range views over the foreground of the position. They develop a heavy volume of fire against the enemy advance, and by their action mislead him as to the dispositions of the principal defending forces. Their lines of withdrawal are prearranged, and the withdrawal is so executed as not to mask the fire of the troops in the rear.

(2) Conduct of the platoon as outpost support or advance (rear) party of an advance (rear) guard is similar to that prescribed for the company in paragraph 283.

(3) In the prolonged occupation of a position, security measures may approach those prescribed for position defense (par. 284).

■ 250. POSITION DEFENSE.—*a. Preparations for relief.*—When a platoon is notified that it is to be called for duty in a defensive position, the leader assures himself by inspection that the arms, clothing, and equipment of his men are in proper condition and each man has the ammunition, reserve rations, and kit prescribed by orders and regulations.

b. Reconnaissance.—The relief of troops holding part of a defensive position usually takes place at night. The platoon leader makes a personal reconnaissance by daylight of the

position to be held by his platoon. Accompanied by a messenger, he proceeds with his company commander to the command post of the company to be relieved, where the plan of defense of the company area is studied. He then goes with his messenger and a guide furnished by the outgoing company to the command post of the platoon which he is to relieve. He sends the messenger back to join the incoming company commander and releases the guide.

c. Plan.—He receives an extract of the plan of defense from the platoon leader he is to relieve. The extract comprises—

(1) Mission of the platoon and each squad (for example, to cover a sector of fire or to flank an adjacent element; or to occupy a combat position in case of alarm, together with contemplated future action).

(2) Detailed sketches of the dispositions and of the hostile trenches.

(3) Missions of adjacent platoons; means of communication with them and with the company commander.

(4) Plan of work.

d. Inspection.—The two platoon leaders then make an inspection of the position and arrange for such transfer of supplies and equipment as may be authorized. The incoming platoon leader obtains information concerning—

(1) Conduct and habits of the enemy; strength and location of hostile obstacles; gaps in hostile wire; location of hostile posts, machine guns, and mortars; mining activities; hostile patrols.

(2) Lay of hostile close-in defensive fires, both artillery and machine gun, and gaps therein.

(3) Points in own lines exposed to fire of hostile snipers.

(4) Location of friendly machine guns; their sectors of fire and gaps in their final protective lines.

(5) Location of supporting mortars and their fires.

(6) Location of antitank weapons and their sectors of fire.

(7) Location of artillery barrages in front of the position.

(8) Signals for starting and stopping close-in defensive fires.

(9) Location of nearest artillery observer.

(10) Location, nature, and capacity of shelters.

(11) Defensive measures against gas and system of giving gas alarm.

(12) Accessory defenses and hidden passages through the wire.

(13) Location of nearest aid station and route thereto.

(14) Arrangements for supply of water, ammunition (including grenades), sandbags, wire, pyrotechnics, and other supplies.

e. Point of assembly.—A point of assembly for guides who are to lead incoming platoons is usually designated.

f. Preparations by outgoing platoon.—The outgoing platoon makes its preparations for departure before the hour of relief. It takes with it only its own equipment. Grenades and cartridges in excess of the number prescribed to be carried on the person are left in the position. A list is prepared of trench stores on hand which the incoming platoon leader is to check and sign. Trenches, shelters, and latrines are left clean.

g. Arrival of incoming platoon.—The guide meets the incoming platoon at the assembly point at the designated hour and conducts it to a designated point in the platoon area. The squads of the incoming platoon are then assigned to positions. They are conducted to those positions by guides furnished by the corresponding squads of the outgoing platoon. Individual observers and sentries are then relieved. The leader of the outgoing platoon is responsible that no man leaves his place until the member of the incoming platoon who is to relieve him is posted and is thoroughly familiar with all of his duties while so posted.

h. Instructions to incoming platoon.—At some convenient time the incoming platoon leader informs his men concerning their firing or assembly positions and duties in case of attack, the parts of the position exposed to the fire of hostile snipers, the location of ammunition niches and latrines, and the location of the nearest aid station and platoon, company and battalion command posts, and routes thereto.

i. Completion of relief.—As soon as he has taken over his position, the incoming platoon leader reports that fact to his company commander. The outgoing platoon leader marches his platoon out of the company area when so directed by his

company commander. In case of attack while the relief is in progress, the outgoing platoon leader retains command.

j. Inspection by incoming platoon leader.—The incoming platoon leader inspects the position of each element as soon as the position has been occupied to insure that each squad leader understands his orders and that all parts of the platoon are in readiness for defensive action.

k. Dispositions.—Unless cogent reasons for a change are apparent, the plan of defense in force at the time of relief continues in force during the first night of occupancy. The routine varies as to the nature of the position held and its location in the system of defenses.

l. Daily routine.—(1) The platoon sergeant keeps a duty roster. Details for carrying parties, working parties, and other service are adjusted in an equitable manner. Each squad details its own sentries; details are made by the platoon only when the entire unit is sheltered close together. Men are warned for duty and informed as to the hour when the duty is to commence. Bulletin boards are improvised for the posting of platoon orders, when practicable.

(2) One hour before daylight and at dusk all officers and men go to their proper posts. At the afternoon formation, rifles, ammunition, and equipment are inspected, and the firing position of each man is tested to see that it is suitable. All gas defense measures are inspected and alarm apparatus tested. At the morning formation, ammunition is issued to replace that expended during the night.

(3) The platoon leader holds practice alerts and alarms. The prompt issue of troops from shelters, the manning of firing or assembly positions, and preparation for counterattack are practiced. The ability of the platoon to meet a sudden hostile attack depends on the efficiency of its sentries and observers and the promptness with which the platoon takes its posts when the prescribed alarm is given.

(4) If necessary, the platoon leader makes provision for heating soup and coffee (charcoal, solidified alcohol). He takes all possible measures for the proper sustenance of his men. Ration parties carry back unserviceable material and the weapons of the killed and wounded.

(5) The helmet is always worn and the gas mask carried. In a combat echelon company, the men are always under arms; the pack, canteen, and blanket are set in order in the shelter. Rifles are cleaned and oiled daily and after a gas attack.

SECTION IV

RIFLE COMPANY WEAPONS PLATOON

■ 251. REFERENCES.—*a.* For composition and equipment see appendix II.

b. Members of the platoon are trained—

(1) As individual soldiers (pars. 197 to 215, incl.).

(2) In the light machine-gun section (sec. V).

(3) In the 60-mm mortar section (sec. VI).

c. Noncommissioned officers of the platoon are trained to take charge of either a mortar or light machine-gun section and conduct its movement and fire in cases of emergency.

■ 252. DUTIES OF PERSONNEL OF COMMAND GROUP.—*a.* The platoon leader leads the platoon and controls company weapons carriers as a unit during route and approach march; during combat he takes personal charge of the mortar section.

b. The platoon sergeant, second in command, assists the platoon leader in control of the platoon and weapons carriers during route and approach march; when directed he joins the company commander and acts as agent for the platoon leader.

c. The transport corporal conducts carriers to off-carrier position designated by platoon leader; moves carriers as directed by the battalion transport officer when released by the platoon leader; displaces carriers to new positions when directed; supervises concealment or camouflage of carriers in position and at all halts.

d. One messenger accompanies the platoon leader and one reports to the company commander when the company develops for approach march.

e. The chauffeur drives the company weapons carrier.

■ 253. ROUTE MARCH.—*a.* In route march, the platoon marches as prescribed for a rifle platoon under command of the pla-

toon leader. Its place in the column is designated by the company commander. It is usually assigned a position following the rearmost rifle platoon.

b. The weapons carriers move with the battalion transport. The section leaders designate a gunner to ride each carrier and man the antiaircraft machine gun.

■ 254. APPROACH MARCH.—*a. Method of movement.*—The development order of the company commander prescribes the method of movement during the approach—whether the platoon will march assembled as a unit or distributed to rifle platoons or to echelons of the company for the execution of tactical missions; if to march assembled, its initial location, march objective, and direction of the advance; if distributed for the execution of tactical missions, the mission of light machine-gun and mortar sections, the attachment of squads or sections to rifle platoons or their place in the several company echelons, and missions of each unit; whether the platoon transport will move with the platoon or assemble with the battalion transport.

b. *Covered approach.*—(1) In the covered approach march of the company, the platoon usually advances assembled in the rear echelon of the company. The platoon leader assigns the direction of advance as prescribed in FM 22-5 and designates a base section. When the platoon leader desires to control the advance personally, he orders the base section, "Follow me."

(2) The platoon advances with sections disposed in a manner best adapted to the terrain to be crossed. The platoon leader orders the initial distribution and studies the terrain with a view to advancing the platoon by routes least exposed to observation from enemy localities and to maintaining control during the advance. He must seek to determine at all times what areas are visible from enemy terrain.

(3) According to the situation and the terrain, the platoon may be in one or two echelons with sections abreast or in successive echelons. Distribution with sections abreast is generally best adapted to rapid movement over open terrain. Distribution in depth is indicated when it is desired to take advantage of covered routes of advance or to avoid obstacles.

Dispositions are varied throughout the approach in accordance with changes in the nature of the terrain and the situation.

(4) Where broken terrain does not permit rapid movement of the carriers, the foot elements and the carriers may move together. On level ground, it is generally best to have the carriers follow the foot elements by bounds in order to take advantage of their speed of movement. The carriers halt for antiaircraft action. Carrier antiaircraft weapons are at all times manned and alert for action.

(5) The platoon leader or, in his absence, the platoon sergeant, accompanied by the command group, precedes the platoon along the route of march to locate favorable crossing points or minor detours for the passage of obstacles by the carriers. He seeks to screen his unit from hostile observation, move it so as to evade or minimize hostile fire effect, and retain the greatest practicable degree of control over all platoon elements.

(6) Movement in approach takes place in a series of bounds. The platoon is assigned an initial movement objective by the company commander, and the platoon leader designates the platoon objective to the leader of the base section. This objective is not necessarily that designated by the company commander but may be an intermediate terrain feature. The platoon leader normally precedes the platoon by distances sufficiently great for effective reconnaissance of the line of advance and the location of gassed and shelled areas and areas exposed to hostile observation. On approaching a heavily shelled area, he detours the platoon around it or takes advantage of lulls in the hostile fire to send it to its next objective by individual rushes controlled by section leaders. During the absence of the platoon leader on reconnaissance, the platoon sergeant maintains contact with him by sight or through a connecting file.

c. Uncovered approach.—(1) In the uncovered approach march of the company, where two rifle platoons of the company are in leading echelon, it is usually advisable to attach a mortar squad to each platoon and march the weapons platoon (less detachments) with the remaining weapons on the carriers, foot elements marching near the rear of the

interval between the two platoons, the carriers following by bounds behind the second echelon. At all halts, carrier machine guns are manned for antiaircraft fire.

(2) Where, exceptionally, only one rifle platoon is employed in the leading echelon, all elements of the weapons platoon not attached to rifle platoons may march as prescribed for covered approach, following immediately behind the second echelon platoons; a mortar squad may be attached to the leading platoon.

(3) When action appears imminent, the platoon leader moves with the company command group and executes such reconnaissances as may be directed by the company commander or as may be indicated by the situation. He reconnoiters the zone of advance and the terrain feature designated by the company commander as the objective of movement. He conducts reconnaissance with a view to the possible employment of the mortars and light machine guns in case the company commander should order an assembly for action on the objective. The reconnaissance bears especially on—

(a) Situation on the flanks favoring the employment of the light machine guns.

(b) Terrain in front of the rifle platoons masking their observation and fire.

(c) Firing positions from which the missions of the weapons can be best accomplished.

(d) For the light machine guns, cover positions for occupancy by men and weapons while awaiting orders to move into firing positions.

(e) Off-carrier positions affording cover for the carriers and, when necessary, cover position for the men while awaiting instructions to move the weapons into firing position areas.

(4) On arrival at their objectives, sections halt in cover positions. Carriers are concealed or camouflaged.

d. Initial reconnaissance.—(1) The leader of the weapons platoon accompanies the company commander when action appears imminent and receives his instructions relative to the reconnaissance of firing and off-carrier positions. The

company commander gives instructions relative to initial position areas and the off-carrier positions.

(2) The platoon leader directs the movement of the carriers to the off-carrier position or other rendezvous and informs the section leaders as to the location of the firing position area or areas. The latter move the sections with their weapons to the vicinity of the position area and inform squad leaders as to the approximate position of each piece. The squad leaders make the detailed reconnaissance for the exact location of the firing positions. Section leaders reconnoiter and establish their observation post.

■ 255. COMBAT.—*a. Attack.*—(1) *Light machine guns.*—In attack, the light machine-gun section is detached from the platoon and operates at some distance from the mortar section. The section leader receives his orders directly from the company commander. The mortar section is directly controlled by the platoon leader.

(2) *Mortars.*—(a) When tanks lead the attack, the mortars take positions in readiness to support the advance of the rifle echelon in areas where the tank advance may have been stopped or the tanks may have cleared the hostile position.

(b) When the company attacks without the initial support of tanks, the mortars are usually the principal elements on the company base of fire. Where the distance from the final company assembly position to the hostile resistance greatly exceeds midrange, or when conditions of visibility make observation impossible, it is impracticable to establish a company base of fire. In this case the mortars prepare to follow the advance of the attacking echelon to positions within effective range of their targets.

(c) As the attack progresses, the platoon leader closely observes the action of the leading rifle echelon and coordinates the fire action of the mortars with the fire and movement of the rifle units.

(d) When, as on flat terrain, it becomes necessary for the mortars to occupy open positions, immediate fire direction by platoon or section leader becomes impracticable. Sectors of fire are assigned to the mortar squads. Each squad leader

takes as his primary target enemy elements disclosing themselves in his sector and as secondary targets those located in adjacent sectors. He regulates his fire action so as to support the general plan of action of the company as communicated to him by the section leader and as deduced by his observation of the course of the action.

b. Displacement.—(1) Displacement is so regulated as to cause as little interruption as possible in the continuity of mortar support. In particular, displacement is avoided as far as possible during any period when the leading rifle echelon is in movement.

(2) The situation determines whether the platoon should effect a displacement by section or by squad echelon. The latter method is necessary when continuity in mortar support would otherwise be interrupted. Displacements are best effected during lulls in the action and when movement and fire attack are not immediately contemplated.

(3) When observation of the attacking echelon or the target becomes deficient, the platoon leader orders the displacement of the mortars.

(4) Before moving the mortars from a masked to an open position, the platoon leader assures himself of the completeness of the ammunition supply carried by the mortar squads. With a depleted ammunition supply at the pieces, it is generally best to await the execution of measures for replenishment before moving them into an open position. The section leader moves the unit by bounds, utilizing minor terrain features until the new firing positions are reached.

(5) Where practicable, the carriers displace to a new cover in close proximity to the new positions of the mortars.

(6) When enemy resistance weakens and bases of fire are no longer organized, the light mortars are assigned to the support of rifle platoons. Squad leaders follow and receive further fire missions from rifle platoon leaders.

c. Defense.—(1) (a) The mortars are employed to cover dead spaces in the bands of machine-gun fire in accordance with the battalion plan of fire, and to fire on defiladed areas within midrange where hostile forces might assemble for attack. The execution of these missions may require one or more supplementary emplacements.

(b) The company commander's orders for the defense designate the mortar units to be attached to rifle platoons for defense and those that are to be held under company control. Usually one squad is attached to each front-line rifle platoon.

(c) When a mortar is attached to a rifle platoon, the rifle platoon leader is charged with functions of fire direction. The section leader supervises the preparation for fire missions assigned by the company commander to mortar squads held under company control. The platoon leader prepares fire data for any special fire missions which require the concentration of the fires of more than two mortars. He supervises the replenishment of ammunition of the mortars attached to rifle platoons.

(2) The light machine guns are assigned missions and positions in the battalion plan of fire in order to coordinate the fires of all heavy and light machine guns of the battalion. The light machine guns are not detached from their companies for the execution of these missions.

SECTION V

LIGHT MACHINE-GUN SECTION

■ 256. REFERENCES.—a. For composition, armament, and equipment see appendix II.

b. For formations and movements of the light machine-gun section and squad see FM 22-5.

c. For mechanical training, gun drill, and technique of fire see FM 23-45.

d. For the individual machine gunner see paragraph 214b.

■ 257. CHARACTERISTICS AND MISSIONS.—a. The light machine gun is a direct fire weapon designated to deliver automatic fire at close and midranges against personnel and unarmored vehicles. It is primarily designed as an offensive weapon. Its high mobility and low relief adapt it to the execution of missions close to the front line and enable it to follow the attacking echelon at close distance.

b. The primary mission of the light machine guns is the delivery of flanking or oblique fire in support of the attacking echelon. Their maneuver in combat is for the purpose

of securing positions for the execution of this mission. It shares with the heavy machine gun the mission of direct fire support of tank attacks.

c. The characteristics of the mount, the normal location of the weapon with respect to the leading rifle echelon, and the more adaptable characteristics of other weapons for anti-aircraft missions make the use of light machine guns for antiaircraft fires exceptional. In defense, the light machine gun performs missions on the main line of resistance similar to those of the heavy machine guns (par 362).

■ 258. DUTIES OF COMMANDER.—a. The section leader leads his section in approach march as a unit in accordance with the regulations governing the rifle squad.

b. In combat, the section leader directs the fire of the section and assigns targets or sectors of fire and position areas, and regulates the displacement of the weapons. The squad leader is charged with fire control and fire discipline as prescribed in FM 23-45, the preparation and occupation of positions, the movement of the squad to designated position areas, intrenchment, and camouflage.

c. The various duties of the members of the squad are prescribed in FM 23-45.

■ 259. OFFENSIVE FIRE MISSIONS.—a. When the company organizes a base of fire, the light machine-gun section is assigned a sector of fire or target or targets and an initial position area; or it is assigned positions from which it will prepare to advance with the attacking echelon.

b. Where tanks lead an attack, the section is assigned a sector of fire and an emplacement in accordance with the battalion plan of supporting fires (par. 74).

c. When an open field of fire is available on the flank of the company base of fire, the section is ordinarily assigned a target or targets, or a fire sector. When the company occupies a position to the rearward of an adjacent company, the light machine guns are assigned initial positions in the adjacent zone for the delivery of flanking fire on targets assigned or which may develop in the course of the advance of rifle platoons.

d. The action of the section may be regulated by the assignment of a line of advance in support of the attacking echelon; or it may be held in a position of readiness to await the development of a situation which will permit its employment for the delivery of flanking fires.

■ 260. FIRING POSITIONS.—*a.* Light machine-gun positions are selected so as to permit direct fire on the target or targets assigned or to cover an assigned sector of fire. The location of the front-line troops and the target must be visible from the firing emplacements. Whenever practicable, cover in rear of the firing position should be available for the shelter of the gun crews when not firing and to facilitate the supply of ammunition. A clear field of fire over an assigned sector should be available. When alternate positions are selected the cover position should permit of covered access to both positions. Gun positions are separated by sufficient interval to safeguard against both pieces being taken under the burst of the same projectile, ordinarily 30 to 50 yards. They are usually within hailing or arm-and-hand signaling distance. Consideration is also given to the location of other troops in the area with a view to avoiding congestion. Occupation of positions in adjacent zones or sectors is subject to the restriction that it must not impede the fire or movement of troops assigned thereto. Such positions may be occupied only where the adjacent troops have reached advanced locations.

b. The section leader ordinarily designates the general position area. Squad leaders locate the exact emplacement of the guns and the route of approach thereto.

c. Positions suited to delivering flanking fire are often highly vulnerable from the front. Advantage must frequently be taken of any latitude in the selection of a position allowed by the depth of the area from which fire missions of the section can be executed. It will also frequently be necessary to provide artificial protection in dangerous directions before occupying the firing position.

■ 261. INITIAL RECONNAISSANCE.—*a.* Where the guns are to be employed on an initial base of fire in support of tanks, reconnaissance for firing positions is conducted by the company commander. Where a base of fire is to be organized in sup-

port of a rifle unit advance, the company commander usually indicates the approximate initial position area after considering the recommendations of the platoon leader. The company commander gives the platoon leader the earliest possible information as to his intentions. Where action appears imminent, the platoon leader accompanies the company commander and receives his instructions relative to the reconnaissance of firing and off-carrier positions.

b. The section leader precedes the section; notes the location of the front-line troops and the objectives or fields of fire facilitating the flanking fire of the light machine guns. He particularly observes actual or suspected location of hostile machine guns sited to take advancing rifle troops under cross fires. He selects an initial cover position in close proximity to the firing positions and directs the movement thereto of the squads and their weapons from the off-carrier position.

■ 262. OCCUPATION OF POSITION.—a. Wherever practicable, the squad initially occupies the cover position while the squad leader observes and prepares the firing data. The gunner and assistant gunner move the gun into position on the squad leader's order. Other members of the squad remain in the cover position. On the conclusion of a fire, the crew withdraw to the cover position.

b. The platoon leader provides for constant observation of the sector and the situation on the flanks. The section leader (second-in-command) and a messenger are especially charged with this mission.

■ 263. FIRE DIRECTION AND CONTROL.—a. As a general rule most effective results are obtained by the simultaneous surprise concentration of the fire of both pieces on the same target. The section leader designates the targets, specifies the number of rounds, and gives the command or signal for opening fire. He closely observes the action of the leading rifle echelon and seeks to combine his fire action with the fire and movement of the rifle units. Wherever practicable, he establishes contact with the rifle unit leaders in his vicinity and informs himself as to their situation and intentions.

b. Squad leaders move the pieces into position on preparatory command of the section leader and open fire at his direc-

tion. They keep him informed as to the ammunition supply.

c. When the situation does not permit close control by the section leader, he assigns sectors of fire to the squads and releases fire control to the squad leaders. Each squad leader takes as his primary mission, fire on targets developing in his own sector, and as secondary mission, fire on those targets developing in the adjacent sector. When the squad leader is thrown entirely on his own initiative, he takes his mission from the general plan of the company and leads his squad accordingly.

■ 264. DISPLACEMENT.—a. As a general rule, the mission assigned to the section in attack calls for its movement along a route near a flank of the company and the occupation of successive positions to fire, either across the front of the adjacent unit or across the front of its own company. In accordance with developments in the course of an action, lateral shifts in the line of advance may become necessary in order to obtain a field of fire for the guns for these missions. Effective use of the light machine guns demands that the section leader be constantly in touch with the situation on the flanks of the company. When a position no longer affords an effective field of fire and other factors of the situation permit, the section leader effects a displacement of his unit.

b. The state of ammunition supply has an important bearing on the decision of the section leader to effect a displacement. With a depleted ammunition supply, it is better to effect replenishment before moving into an area where combat conditions make resupply impracticable.

c. The section leader, accompanied by the messenger, moves forward to reconnoiter the new position and the situation in the forward area. After locating the general position area, he selects a cover position in the closest possible proximity thereto. He then signals or otherwise directs the squads to move to the cover position.

d. Squad leaders conduct their squads to the designated point, utilizing covered routes where available. The further orders of the section leader are given in the cover position.

e. Displacement is generally effected by squad echelons as prearranged by the platoon leader.

■ 265. DEFENSE.—*a.* When a defensive position is occupied at the conclusion of an attack or of an approach march, the light machine guns are located on a base of fire by the company commander and the section assigned sectors of fire covering the front of the position. Fire missions are assigned by the company commander and fire opened on his orders.

b. When a battalion defense area is organized, the battalion order assigns the location, sector of fire, and final protective line of the light machine guns. No distinction is made between the basic missions assigned light and heavy machine guns covering the main line of resistance. The positions and missions of the light machine guns will not be altered without authority of the battalion commander.

c. The light machine-gun section occupies and organizes its positions and conducts its fires in the same manner as the heavy machine-gun units (par. 362). Missions outside the zone of the main line of resistance or which detach the section from its company are not ordinarily assigned to light machine guns.

SECTION VI

60-MM MORTAR SECTION

■ 266. REFERENCES.—*a.* For composition, armament, and equipment see appendix II.

b. For mechanical training see FM 23-85.

c. For the individual mortar gunner see paragraph 214*b*.

d. For formations and movements see FM 22-5.

■ 267. CHARACTERISTICS AND MISSIONS.—*a.* The 60-mm mortar is a highly mobile piece presenting relatively low relief, with a useful range of about 1,000 yards. The effective radius of burst of the high explosive projectile is about 15 yards; casualty-producing fragments carry much further.

b. Due to the weight of the ammunition and dependence on manhandling during much of its combat action, the state of ammunition supply and facility of replenishment exercise a controlling influence on the use of the mortar in attack. Commanders must always give especial consideration to the available and prospective ammunition supply in assigning missions to the mortars.

c. The cover requirements of the mortar are slight because of its low relief. Minor terrain features afford adequate cover.

d. The curved trajectory of the mortar enables it to take advantage of deep defilade and to exercise a wide choice in the selection of positions on varied ground.

e. The principal mission of the mortar is fire on targets which cannot be reached effectively by the fire of flat-trajectory weapons.

f. In addition to its fire missions, the mortar serves the purpose of a rifle company signal projector.

268. FIRING POSITIONS.—The location of firing positions is influenced by many factors, including the location of targets and friendly front-line troops, requirements of cover and observation, fire missions assigned by the platoon leader, and facility of ammunition supply.

a. In all cases the mortar positions must be within effective range of the targets and afford observation of the targets and friendly front-line troops. The limiting range to the target is 1,000 yards, and the distance to the front-line troops should not exceed 500 yards. Accuracy of fire falls off rapidly with increase in range. Effort should be made to keep the mortar as close to the leading echelon as the terrain and the situation permit.

b. Wherever practicable, mortars fire from fully defiladed positions. On flat terrain, however, the occupation of open positions is sometimes necessary to bring the mortars into proper relation to their targets and the front-line troops. The low relief of the piece permits it to utilize the cover afforded by minor terrain features such as shell holes, ditches, hillocks, small rises.

c. Wherever permitted by the foregoing considerations, the mortar emplacements should be within voice or arm-and-hand signaling distance from the company command post.

d. Positions permitting covered approach from the rear greatly facilitate ammunition supply and increase the value of the mortar as a supporting weapon. This consideration, however, must not be given precedence over the requirement of proper location with reference to the target and the front-line troops.

e. In locating the mortar position, advantage is taken of natural vegetation to conceal the piece from observation. Natural or artificial means are employed to camouflage the weapon and its emplacement. Where the situation indicates a prolonged occupation of its position, alternate mortar emplacements are selected.

■ 269. FIRE DIRECTION AND CONTROL.—The mortar squad is the basic unit of fire control. The squad leader controls the fire of his mortar from an observation post at or near the firing position of the piece. The section or platoon leader exercises immediate fire direction and concentrates or distributes the fire by assignment of targets or sectors of fire.

■ 270. DUTIES OF LEADERS.—a. The duties of leaders of the 60-mm mortar section are essentially those prescribed for personnel of the 81-mm section (par. 304). However, the closer proximity of the light mortars to the front line in attack usually permits observation of fire near the pieces and makes unnecessary and impracticable fire control from a section observation post. The principal duty of the section leader is to observe closely the rifle troops and regulate the movement and positions of the mortar squads in accordance with the action and changing situation of the rifle elements. Where the company establishes a base of fire, the section or platoon leader gives the command or signal for opening fire on a target and specifies the number of rounds for each mission. Prior to displacement, a sector of fire or target area is assigned to each squad; the squad leaders take as primary targets those included in their assigned target areas or sectors and as secondary those appearing outside their sectors or target areas. They regulate their fires in accordance with the situation and the needs of the attacking echelon.

b. Distribution of the mortars should be made with a view to their ability to support the rifle platoons rather than to facilitate section or platoon concentrations of fire.

■ 271. MORTAR SQUAD IN DEFENSE.—a. In defense the mortar squad is assigned a primary target area and may be assigned secondary target areas. Target areas are usually

about 50 by 50 yards. They cover gaps in the final protective lines of machine guns in the company defensive sector or defiladed approaches to the positions not covered by artillery or by the battalion supporting weapons. Fire is opened on signal prescribed by the company commander or on orders of the rifle platoon leader. On signal for the opening of final protective fires, mortars fire on their primary target areas. When not actually engaged in firing or in preparing to fire on another target, the mortar is laid to fire on its primary target area. A supply of mortar ammunition is usually dumped in a covered location convenient to the mortar positions. From this location it is carried to the mortar by the ammunition carriers of the squad.

b. Mortar emplacements should be within arm-and-hand signaling distance of the post of the commander under whose direction the mortars are operating (rifle platoon or weapons platoon commander).

SECTION VII

RIFLE COMPANY

■ 272. REFERENCE.—For composition, armament, and equipment see appendix II.

■ 273. COMPANY HEADQUARTERS.—Company headquarters includes the personnel necessary to assist the company commander in performing his duties of control, administration, and supply of the company. The members of company headquarters are grouped according to the nature of their duties in combat as follows:

a. *Command group*.—This group functions under the personal direction of the company commander; posts of personnel in combat dispositions are specifically prescribed by him in each situation.

(1) *Company commander*.

(2) *Lieutenant*.—Second-in-command of the company, whose primary functions are—

(a) To keep abreast of the tactical situation as it affects his company.

(b) To replace the company commander should the latter become a casualty.

(c) To perform any duty assigned him by the company commander including the replacement of any officer of the company who has become a casualty.

(d) In offensive situations, to accompany his company initially as far forward as the battalion assembly area and be present when the company attack order is issued. When the company moves forward to the attack, the second-in-command, with the first sergeant and two buglers, establishes the company command post and remains with it until his presence further forward with the company may be necessary to replace the company commander or a platoon commander should either become a casualty.

(3) *First sergeant*.—In charge of command group.

(4) *Communication sergeant*.—Controls use of light signals by the mortar section; supervises runners; assists in the organization of observation.

(5) *Buglers*.—Especially trained for duty as observers; operate with communication sergeant under direct control of company commander.

(6) *Four messengers*.—One sent to battalion headquarters on development of the company; one accompanies company commander. The command group is augmented by one additional runner from each platoon to maintain communication within the company and to other units.

b. Administration and supply group.

Mess sergeant and cooks.

Supply sergeant and armorer artificer(s).

Company clerk (corporal).

(1) The company mess and supply personnel functions under supervision of the battalion supply officer in the rear echelon.

(2) The company clerk functions under supervision of the regimental adjutant in the rear echelon.

■ 274. ROUTE COLUMN.—*a.* During the march in route column, the company commander requires his officers and noncommissioned officers to enforce the rules governing march discipline and to prevent straggling. (See FM 100-5.) At night

he requires silence and order to be maintained. The commander of the leading company regulates the rate of march as prescribed by the battalion commander. Other company commanders regulate the rate of march so as to retain their proper positions in the column. The position of the company commander is ordinarily at the head of his company. He goes wherever his duties require.

b. The command group of company headquarters is formed as a squad in charge of the first sergeant and usually marches at the head of the company. The weapons platoon marches in rear of the last rifle platoon. The company weapons carriers usually move with the battalion transport (par. 348) and are controlled by orders of the battalion commander.

■ 275. DEVELOPMENT AND APPROACH MARCH.—a. The advance in route column terminates when the battalion goes into an assembly position or develops for approach march. The company develops in accordance with the battalion commander's development order.

b. The development order of the company commander includes—

Information relative to the enemy and friendly troops (not already transmitted to platoon leaders).

Mission and initial movement objective of the company.

Initial dispositions: distribution of rifle platoons and command group to echelons; distance and intervals, where necessary.

Missions and distribution of weapons platoon.

Base unit; direction (distant landmark or compass bearing).

Security and reconnaissance.

Antiaircraft and antitank measures (including look-outs).

Disposition of carrier.

Position and future movement of the company commander.

As soon as the company has developed, one runner from each platoon and one from each weapons section report to the communications sergeant. They remain at his disposition until close-order formation is resumed.

c. The mission of the company and the objective follow from the battalion commander's order. If the company forms the leading echelon of the battalion in uncovered approach march, it is charged with securing the movement of the battalion and with carrying out reconnaissance over the battalion zone. Companies in rearward echelons follow the leading echelon by bounds and move on objectives fixed by the battalion commander. They maintain liaison with the leading echelon which covers their movement.

d. In uncovered movement, the leading company ordinarily requires two rifle platoons in the leading echelon to secure the movement of the battalion and reconnoiter the battalion zone. The company commander assigns the platoon zones of reconnaissance and objectives. They cover their zones with scouts or patrols and advance by bounds from one terrain line to the next. Platoon leaders regulate the movement of scouts and patrols so as to assure security of the platoon against hostile fire from points within midrange. Platoons of the leading echelon are frequently reinforced by mortar squads. It will often be advantageous to move the light machine-gun section near the center of the interval between the two platoons where it will be in position to support either platoon. (See fig. 13.) The platoon in second echelon is moved so as to provide protection in the most dangerous direction of hostile approach against the flank of the company. An exposed flank is covered by a security patrol (par. 233c).

e. The automatic rifles and the rifles are the principal anti-aircraft agencies of the rifle company. The automatic rifles are employed as units under the immediate direction of their platoon leaders (par. 244). At all halts, the company commander establishes antiaircraft and antitank lookouts.

f. When fire is opened on any element of a platoon, adjacent platoons continue to advance. They open fire on the enemy element without changing direction when they have gained a favorable position on its flank. A platoon coming under fire immediately seeks to locate the flanks of the resistance through patrols. For the conduct of the platoon in isolated combat see paragraph 247d. The company deals by similar means with resistance developed over its front.

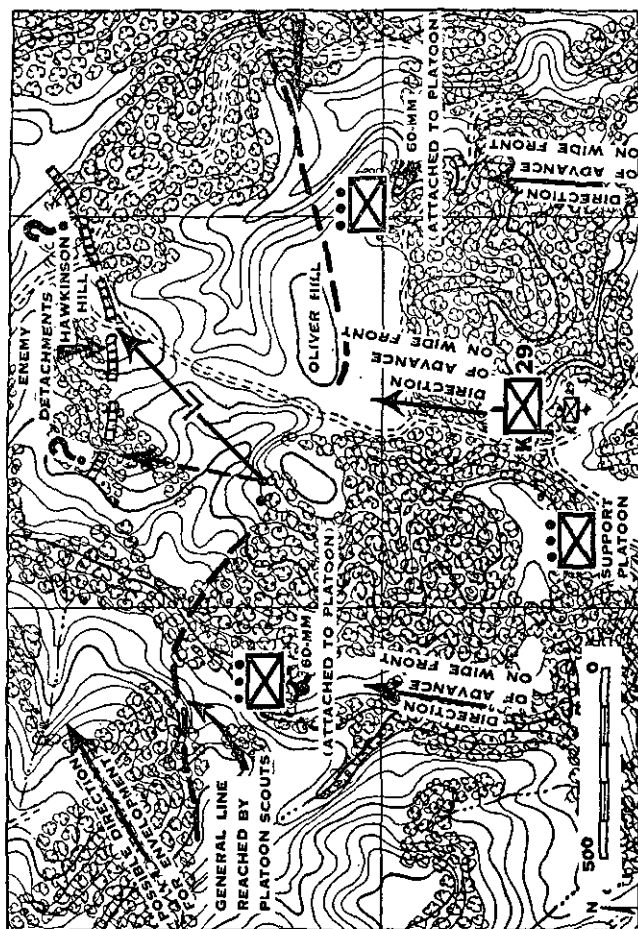


FIGURE 13.

NOTE (fig. 13.)—*Base of fire established by rifle company as leading company covering approach of battalion on wide front.*—Both flanks open. The company is advancing on a wide front as the leading company of the battalion in an uncovered approach. Enemy detachments of unknown strength have opened fire on the leading elements from the vicinity of Hawkinson Hill. The two light machine guns are used to establish a base of fire to facilitate the advance or to support an envelopment as the situation requires. Note that one 60-mm mortar is attached to each leading platoon. The third mortar remains under control of the company commander.

g. The distribution and movement in covered approach are regulated so as to take best advantage of covered routes of advance and avoid gassed and shelled areas. This is generally best accomplished by distribution in depth. The company commander ordinarily moves with the leading element.

h. Company commanders control the advance of their companies in approach through the successive assignment of objectives. Halts on each objective are only of sufficient length to enable commanders to readjust dispositions, check up on direction, and prepare for the next bound of movement. In passing through woods, distances and intervals between units are decreased so as to maintain visual liaison between units. In dense woods connecting files may be necessary.

■ 276. **ATTACK.**—*a.* When the battalion attacks following an uncovered approach march, the leading company covers the assembly for action and the organization of the initial base of fire of the battalion. It outposts the assembly position in accordance with the general considerations described for an outpost support (par. 283c.) On the arrival of other companies it may be assigned to a position in the attacking echelon or withdrawn and placed in reserve. The action of a company in occupation of its assembly area varies with the distance of the objective, the situation on the flanks, and the nature of the support to be given the attacking echelon.

b. The company commander organizes a company base of fire when adequate cover for his company exists within light mortar range of the objective, or terrain on the flank(s) offers an open field of fire for the light machine guns. These conditions may exist on the battalion base of fire, or cover in advance thereof may offer facilities for the organization of a company base; in the latter case such cover becomes the

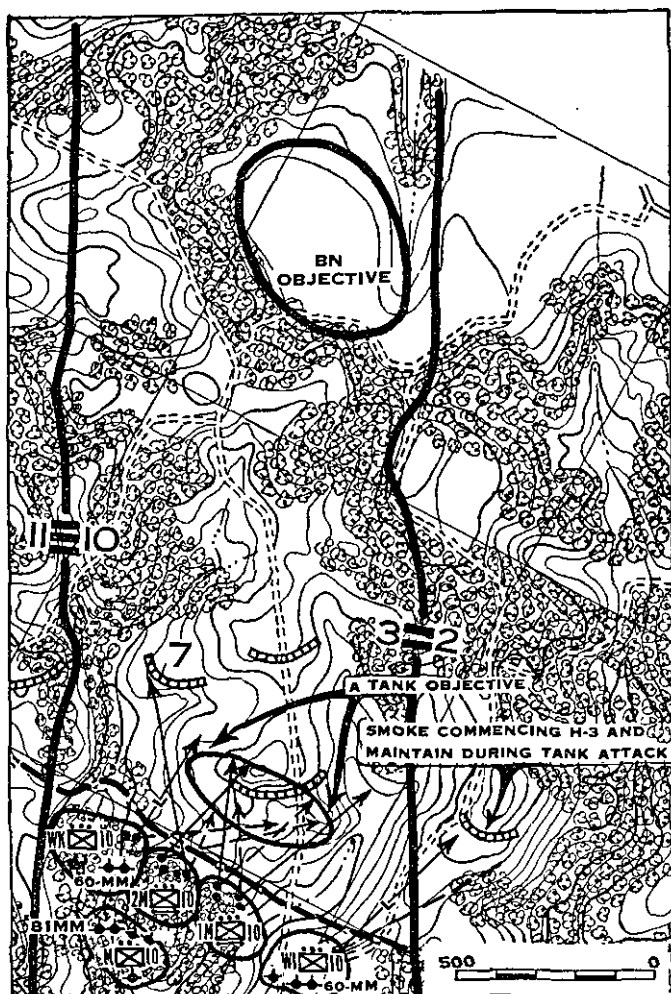


FIGURE 14.

NOTE (fig. 14).—*Base of fire established by battalion and attacking rifle companies combined for support of tank attack.*—Note that the battalion heavy machine guns together with the light machine guns of the attacking rifle companies are used to support the advance of the tanks. The antitank weapons of the battalion (cal. .50 machine guns) not shown in this figure are located in accordance with the principles given in paragraph 324. The mortars, both 81-mm and 60-mm, are in position to support the attack of the rifle troops or displace forward. (See pars. 276b and c and 309.)

initial company objective. When tanks lead the attack, the light machine guns are emplaced for the support of the tanks in their advance into the hostile position in accordance with the battalion plan of supporting fires; they cease fire with the commencement of the foot infantry advance. (See fig. 14.) A principal consideration in the selection of an assembly position (area) is cover from observation and fire. It is not essential that platoons be placed on the same line. Where tanks are to lead the attack, the rifle platoons and the light mortars may be initially assigned to cover positions in rear of their departure positions; initially only the light machine guns take firing positions on or near the line of departure. The company commander gives the necessary instructions to rifle platoon leaders for the antiaircraft and flank protection of the assembly position and, where necessary, details temporary combat outposts for its security.

c. Where by reason of the terrain and the lack of an open field of fire on the flanks it is impracticable to organize a base of fire on the final assembly position of the company, the light machine guns and light mortars are distributed so as best to support the advance of the attacking echelon. Light mortars following the attacking echelon by bounds seek to gain a covered firing position within midrange of the objective. The light machine guns move in conformity with the plan of attack. They follow adjacent units to positions from which they can flank the advance of their own company; or they move to positions in the zone of their own company to afford flanking support to adjacent units, and by their fire hold down cross fires endangering their own company from hostile elements on the flanks of the company zone. (See fig. 15.)

d. The company commander retains control over his weapons and ammunition carriers as long as the situation and his available ammunition supply permit. Frequently the car-

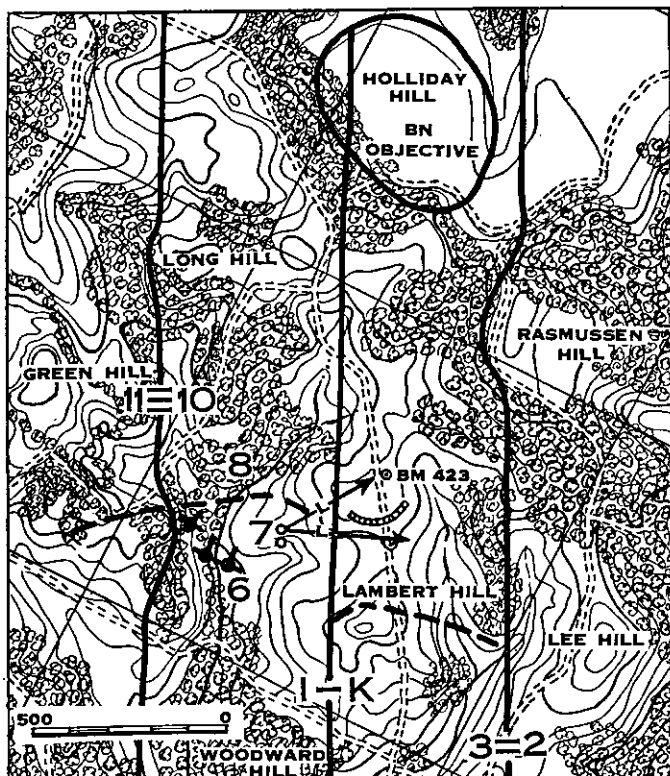


FIGURE 15.

NOTE (fig. 15).—Base of fire established by rifle company in attack situation.—Company I, 10th Infantry, has advanced via ravine 6 and has captured hill 7 where it has been stopped by enemy resistance in woods 8 and enemy fire from the vicinity of BM 423. It establishes a base of fire. The light machine guns are employed to protect the right flank of the company and to assist the advance of Company K which has been held up on Lambert Hill. The company mortars are located in ravine 6 where they may be employed against suitable targets to assist the advance of Company K, or to support a continuance of the attack by Company I.

riers will have to be released to the control of the battalion transport officer at the battalion assembly position. Whenever in the course of the action a position is gained offering cover for the carriers and the carriers are not promptly forwarded, the company commander takes action to expedite their movement. He assigns their location and dispatches guides to conduct them. He moves as rapidly as possible to replenish the ammunition supply of his weapons platoon and rifle platoons. The carriers are always forwarded to the company at nightfall.

■ 277. ATTACK ORDER.—*a.* Preparation for the attack, including the movement into the final assembly position and initial security measures, is generally put into effect by successive fragmentary orders and will only in special cases be regulated by a complete company attack order. Frequently the designation of the objective and hour of attack will be all that is necessary to complete the dispositions for attack on the arrival of the company in the assembly position. The sum total of the instructions for the preparation and execution of the attack will include—

Information relative to enemy and supporting troops.

Mission of the company, its assembly area, security measures, objective, general plan of attack.

Missions of rifle platoons, assignment to attacking echelon and support, assembly areas, objectives.

Mission of light machine guns and light mortars.

Artillery and heavy weapons support.

Support by combat aviation.

Ammunition supply, disposition of carriers (see par. 5, appendix II for carriers and loads).

Communications, including prerranged light signals and the use of panels.

Post and, if practicable, projected movement of the company commander.

b. The distribution of the rifle platoons between attacking echelon and support is especially influenced by the nature of the terrain of the attack. The most usual initial distribution places two platoons in the attacking echelon and one in support. But where especially favorable conditions for the advance exist on part of the company front, with flat terrain affording only isolated cover on the remainder, the attack

may be most effectively initiated by assigning only one platoon to the attacking echelon, leaving the open terrain to be covered by the fire of the light machine guns. Besides enabling the rifle units to avoid unfavorable terrain, such a distribution creates lateral gaps which enable the light machine guns to obtain their greatest effect through flanking or oblique cross fires. For the same reason, distribution of the rifle platoons in successive echelons with resultant lateral gaps between adjacent companies is often the best procedure on uniformly coverless terrain.

■ 278. CONDUCT OF ATTACK.—*a.* In the course of the attack, the company commander seeks to bring about the closest possible coordination between the movement of the rifle platoons and the fire of his supporting weapons and to combine the action of the entire company with the support of the artillery and the heavy weapons. This result calls for the concentration of all available means in respect to both place and time and reciprocal teamplay between the attacking and supporting elements. The company commander will frequently call for artillery and heavy weapons fire in support of his plans of action, and he must at all times keep the battalion commander informed as to his situation and intentions in order that the latter may effectively employ the supporting fires at his disposal.

b. One of the most effective means of coordinating the action of attacking and supporting elements and combining their action in both place and in time is the designation of successive objectives and the organization of successive bases of fire. The company commander designates successive objectives throughout the course of the attack, and wherever the situation requires he organizes a base of fire in support of each bound of advance. Where the company supporting weapons cannot be put into action initially, due to insufficient range or lack of a field of fire, they follow the advance to firing positions from which effective fire on the objective can be delivered. This will frequently call for pushing the light machine guns in behind the rifle platoon making the greatest advance, or behind an adjacent company gaining an advanced position. Advantage may also be taken of an open field of fire on the flanks of the company to bring fire

to bear on hostile resistances in front of adjacent rearward companies. A support platoon is generally disposed so as to afford protection on exposed flanks. For the proper employment of the light machine guns, the company commander must at all times be thoroughly informed as to the situation on the flanks of the company as well as on his own front.

c. The movement of the light machine guns into the attacking echelon is justified only in case of grave emergency. Their merger with the attacking riflemen seldom yields commensurate returns and usually makes them unavailable for flanking missions. Commanders should not allow the lack of flanking fields of fire to lead machine-gun squads to seek employment in the attacking echelon, but should, as a general rule, hold them out of the fight for use when a situation favoring their use for flanking support develops.

d. The company commander organizes his observers so as to hold the entire attacking echelon and the terrain on the flanks of the company under constant observation. They observe the effects of supporting fires and the movement of the attacking echelon and of troops on the flanks of the company and promptly report important developments. The company commander posts himself where he can best observe the action of the attacking echelon and control his support platoon and weapons platoon. He establishes direct liaison with heavy weapons in the company zone and asks for heavy weapons support of his projected action either directly or through the battalion commander. He makes no effort to fill gaps on his flanks but rather exploits the flanking fields of fire which they offer for his light machine guns.

■ 279. ASSAULT.—a. In the course of the attack, the company commander endeavors to sense the point where resistance is weakening and to concentrate his forces for the assault. He assembles his support platoon and supporting weapons as far forward as the situation and terrain permit.

b. A general assault by the entire company is usually preceded by a bombardment by combat aviation or by artillery and takes place at a prearranged hour. The assaulting echelon moves as close as possible to the hostile position under the cover of aviation attack, artillery and mortar fire and delivers the charge as soon as the fire lifts.

c. The assaulting echelon pushes through the depth of the resistance to the battalion objective without allowing the enemy an opportunity to reconstitute his defense. Available supports are put in where opposition has given way or slackened. The company takes prompt measures for the maintenance of the direction of the attack without lateral deviation straight through to the battalion objective. The organization of light machine-gun fire in support of further tank advance or of light mortar fire in support of rifle platoons is a first consideration. Distribution in depth is restored. Available supports are disposed to furnish protection against flank counterattack and for antiaircraft fire.

d. The company does not devote any of its forces to cleaning up isolated resistances holding out after the assault but leaves these to be dealt with by subsequent echelons especially charged with that mission.

■ 280. DEFENSE.—a. The preliminary organization of a defensive position in proximity to the enemy generally develops from the occupation of an assembly position and a base of fire as described in paragraph 276b. A defensive position will sometimes initially coincide with the assembly position. The extent of the further development of defensive dispositions depends upon the time available.

b. A company in the combat echelon is assigned a section of the battle position. It occupies the assigned area in such a way as to cover the terrain in front of the main line of resistance and offer resistance to the flanks.

c. The company commander assigns sections of the company defense area to his rifle platoons and points out the exact course of the main line of resistance to the rifle platoon leaders. He usually reinforces each rifle platoon with an additional automatic rifle and frequently with a light mortar. He prescribes the intrenchments to be constructed, makes allotment of special tasks, fixes priorities, and indicates the time available. He fixes the conditions for opening fire and for calling for final protective fires (light signal). Where necessary, he details security detachments for flank protection on the boundary of his defensive area. He confers with commanders of heavy machine-gun units and gives rifle platoon leaders the necessary instructions for covering gaps

in the bands of machine-gun fire. (The positions and sector of fire of the light machine guns are prescribed by the battalion commander and will not be altered without his authority.)

d. Long-range fires are executed by the heavy weapons (par. 338c). Premature opening of fire by rifle companies discloses the defensive dispositions and exposes the troops holding the main position to the annihilating fire of the hostile artillery.

e. Whether support platoons are held mobile for counter-attack or employed to deepen the area defense depends principally upon the nature of the terrain of the company defense area (par. 97b). In either case, support platoons are disposed so as best to insure the flank protection and antiaircraft defense of the combat echelon and deal with hostile elements penetrating the main line of resistance. When support platoons are employed to deepen the zone of resistance, squads are emplaced in a general checkerboard disposition with respect to those in the leading echelon, with a view to flanking combat groups of the leading echelon and covering the intervals between them. They are also prepared to cover the flanks of the company against flank attack. For the execution of these various missions, the selection of alternate emplacements is generally necessary. A platoon held mobile for a counterattack mission is posted under cover beyond the zone of dispersion of artillery fire directed on the leading echelon. Pursuant to the instructions of the company commander, the platoon leader prepares plans of action and selects departure positions for counterattack under various assumptions as to possible penetrations of the leading echelon.

f. The company commander details combat outposts and fixes their day and night locations in accordance with the battalion commander's order. He prescribes their conduct in case of attack and fixes their lines of withdrawal. He informs platoon leaders and adjacent units as to their location. He details patrols for the night exploration of the foreground of his sector. He coordinates the illumination of the foreground with their activity. He makes periodic reports of his dispositions to the battalion commander. The company commander establishes antiaircraft and antitank warning posts and makes known the warning signals to platoon leaders. He

establishes a company ammunition point and sends the carrier to the battalion ammunition point. He fixes his command post with a view to the requirements of observation of the company sector and communication with the platoon leaders and the battalion command post. Special posts for observing the situation on the flanks of the company are frequently necessary.

■ 281. DELAYING ACTION.—*a.* Delaying action is executed through the occupation of successive defensive positions preferably covered by an antitank obstacle and affording long fields of fire with a view to arresting or delaying a hostile advance for a more or less determinate period. The company generally holds a wide front. Platoon leaders exercise a wide degree of initiative. Light mortars are usually attached to rifle platoons. The company commander retains control over the light machine guns.

(1) The automatic rifles carry the burden of the fire fight of the rifle platoons. They open fire at long-range.

(2) One rifle platoon, in second echelon, usually occupies the position selected for the next line of resistance or an intermediate position between two successive lines of resistance.

(3) The withdrawal of the combat echelon is preferably effected successively by platoons. The company commander uses his light machine guns to cover the gap created by the withdrawal of a platoon, usually from positions behind a remaining platoon. They withdraw in time to occupy positions for the support of the withdrawal of the last rifle element.

(4) Heavy (cal. .30) machine guns and battalion antitank weapons are frequently attached to rifle companies to support their withdrawal. The caliber .30 machine guns carry on the long-range combat from positions in rear of the rifle company. The antitank weapons open fire at the earliest moment that promises effect against the type of hostile tank employed.

(5) The company commander regulates the withdrawal of the rifle platoons either by fixing the hour of withdrawal or by specifying the line to be reached by hostile forces before the withdrawal commences. He coordinates the withdrawal of the light and heavy machine guns with that of the rifle

platoons so as to assure continuous fire support and covering fire.

b. (1) Operations in withdrawal observe, as nearly as practicable, the following sequence:

(a) Establishment of a rifle platoon in second echelon on next position of resistance.

(b) Withdrawal of one platoon of the combat echelon.

(c) Withdrawal of heavy machine guns on carriers.

(d) Withdrawal of light machine guns and light mortars (on carrier if practicable).

(e) Withdrawal of rifle squads of last platoon, the anti-tank weapons, and the automatic rifle squads.

(2) On open terrain, the automatic weapons are the principal fire agencies of withdrawing forces. The rifle squads are held under cover. They are utilized for flank protection and to furnish reconnoitering patrols and combat outposts where required. In wooded or close terrain or in fog, they form the principal fire elements of the company.

(3) The company commander institutes early reconnaissance of successive positions and routes of withdrawal.

■ 282. RESERVE COMPANY.—a. In attack, the company commander observes the progress of the attacking companies and with his platoon leaders conducts reconnaissance of routes to various parts of the forward zone. He assigns platoons positions in readiness under cover from fire and observation. He designates emergency locations with a view to defense against counterattack and protection of the flanks of the attacking companies. He gives platoon leaders instructions for antiaircraft and antitank defense. In posting his platoons, he gives consideration to terrain impassable or difficult for tank movement. He advances his company by bounds from cover to cover in accordance with the progress of the attacking echelon and the instructions of the battalion commander. He keeps constant touch with the battalion commander and posts lookouts to observe the terrain toward his front and toward the flanks of the battalion and to serve as antiaircraft and antitank warning posts. Where terrain on a flank of the battalion is cleared by the advance of an adjacent unit, the company commander conducts reconnaissance with a view to the possible employment of his company in

the adjacent zone. When practicable he locates a provisional departure position for attack of resistance in front of the battalion and locations of a base of fire for his supporting weapons.

b. In defense, the company may be held mobile for counterattack (pars. 97b and 363a). The company commander assigns positions in readiness under cover from fire and observation to rifle platoons. He prepares plans of action under various assumptions of hostile penetration of the principal zone of resistance and assigns alternative assembly positions to his platoons. Where practicable, he locates provisional bases of fire to support the counterattacks. Light machine guns are usually assigned positions on the flanks of the assembly positions of the rifle platoons for the support of prospective counterattacks. Where, as the result of terrain conditions, it appears necessary to distribute the rifle platoons over the battalion defense area with wide intervals between the platoons, the best position for the light machine guns is frequently in the interval. In this case light mortar squads are frequently attached to rifle platoons; in other situations they are held under the immediate direction of the company commander.

■ 283. SECURITY MISSIONS.—a. The most frequent security missions falling to a rifle company are those of advance (rear) party or support of an advance (rear) guard, leading company of a battalion in uncovered approach march, and support of an outpost.

b. In an advance guard of the strength of one battalion or less, the leading company usually constitutes the support and combines in one body the functions prescribed for the support and its advance party. Larger advance guards have a stronger reserve, but the dispositions of the leading company are essentially the same.

(1) The mission of the leading company is the reconnaissance of the front of advance of the command which it serves and the security of the advance guard fraction following in its immediate rear.

(2) An advance party of a column on a march at a distance from the enemy conducts reconnaissance by sending

ahead a point (patrol) on the route of march and by the occasional dispatch of patrols to observation points and dangerous terrain on the flanks. Reconnaissance is conducted with especial attention to routes affording most probable access to hostile tank approach. The weapons carriers follow the company by short bounds. On closer approach to contact with hostile forces, the company develops so as to cover the zone of advance and carry out detailed reconnaissance of the terrain. Its conduct is then as prescribed for the leading company of a battalion in uncovered approach. The conduct of the leading company of a battalion in uncovered approach is described in paragraph 275c.

(3) The combat action of a company operating as rear party in close contact with the enemy is conducted in accordance with the procedure described for delaying action (par. 281). At a distance from hostile forces, its conduct is analogous to that of a company operating as advance party.

c. (1) A rifle company detailed as support of an outpost is assigned a section of the outpost line of resistance and a sector of surveillance. The position to be occupied by the company is also sometimes specified. Within its assigned section, the company organizes a strong point and covers the unoccupied interval of its section with the flanking fire of its light machine guns. Attached heavy machine guns are emplaced for long-range fire of the approaches to the position. They are assigned alternate positions for reinforcing the flanking fire of the light machine guns. Attached anti-tank weapons are sited to cover the most probable routes of tank approach.

(2) The company covers its front with outguards and patrols. Outguards, not exceeding the strength of one squad, occupy day positions, usually within 400 yards of the outpost line of resistance, affording the most extensive views over the foreground of the outpost position; at night they are posted so as to cover the most probable routes of hostile advance. Stronger outguards (detached posts) are detailed to hold more distant features such as stream crossings, villages, important road junctions. Communication with adjacent supports and between outguards is maintained by means of visiting patrols. Patrols are also dispatched for daylight

observation from commanding terrain beyond the vision of outguards on the outpost line of observation.

(3) The company covers the unoccupied interval of its section of the outpost position wherever practicable by obstacles. Intensive night patrolling of gaps is essential. The effectiveness of observation of the foreground and the interior of the position may be increased by illumination where it is not important to conceal the presence of the troops in the locality or the location of the outpost.

(4) The combat of the company takes place in accordance with the procedure prescribed for the defensive action of a company holding a wide front.

(5) A support company moves to its assigned area with due provision for security. It conceals its movement as far as practicable from air and ground observation. A march outpost covers the initial installation of the company on its support position until its definite dispositions have been made.

(6) In the prolonged occupation of a position, the dispositions and conduct of a front-line company may approach those prescribed for security in position defense.

■ 284. SECURITY IN POSITION DEFENSE.—Prolonged occupations of defensive positions permit the development of a highly organized service of security and observation. The organization of this service may comprise: guard service of the position; observation posts; night patrols in front of the accessory defenses; snipers' posts.

■ 285. GUARD SERVICE.—The front-line platoons are the principal agencies of the guard service of the position. They furnish sentry posts and outguards. Units in rearward echelons establish such sentries as are necessary to insure their own readiness for action. At least one sentry for each shelter is posted.

a. One officer in each company and one noncommissioned officer in each platoon are constantly on duty. They are responsible to their respective commanders for the service of security of their units. They make frequent inspections to assure themselves of the vigilance of the sentries and observers and their proper instruction.

b. The noncommissioned officer on guard insures that sentries are alert with rifles loaded and that gas-alarm apparatus is in readiness. He verifies the orders which sentries transmit to each other. He informs them concerning the time of departure and return of patrols and their itinerary. He verifies the condition of loopholes. He is provided with means of artificial illumination and fires it if suspicious noises are heard. He reports to the officer on duty and to his platoon leader all incidents of his tour and the arrival of a superior officer.

c. Sentries may be posted directly from the first-line platoons by the noncommissioned officer on guard or by the leader of an outguard. Each sentry must be informed as to the location of his platoon leader and that of the sentries on each side of him and as to whether there are friendly patrols or working parties in front. All sentries are instructed as to the method of giving the gas alarm or tank alarm. At night sentries are posted at the entrance to all shelters to arouse the occupants in case of attack. They are similarly posted during a hostile bombardment to give warning when the enemy debouches for attack. Sentries make as little noise as possible in challenging and advancing parties. During the day they observe through loopholes or by means of a periscope; at night they observe over the parapet. Listening posts are advanced sentry posts (usually four men) established at night to warn the front-line platoons of the approach of hostile raiding or attacking parties. They fall back after giving the alarm. Sentries are relieved every 2 hours except under unusual conditions. A larger number of sentries is required at night than during the day. The primary duty of sentries is to insure the readiness of the command in case of attack.

■ 286. OBSERVATION.—a. Each platoon and company conducts intensive observation to gather information relative to the enemy and to give prompt alarm in case of attack. Each commander establishes an observation post near his command post and when necessary locates other posts so as to insure that the entire sector of the unit is under continuous observation.

b. Observation posts are not located near conspicuous points of the terrain. The posts and the passages leading to them are carefully concealed and camouflaged. Men are prohibited from walking about in their vicinity. The formation of paths converging at a post are particularly avoided.

c. Each platoon usually employs 4 to 6 men as observers. They alternate on duty to insure continuity of observation.

(1) The observer should be particularly on the lookout in respect to—

Location of hostile automatic weapons or mortars.

Enemy sentries and snipers or points where the enemy indicates his presence.

Hostile observation posts, loopholes, occupied areas, dugouts, new wire, gaps in wire, tracks of patrols through wire.

Indications of location of antitank mines.

Mining: signs of soil excavated and materials carried.

(2) Patient, attentive observation always gives valuable information about the enemy's customs. The least change in the enemy lines or dispositions are reported to the officer or noncommissioned officer on duty.

(3) In case of attack the observers give the alarm by the means at hand. Observers in rearward echelons repeat signals from the front line.

■ 287. NIGHT PATROLS.—a. Observation is supplemented during the night by the reconnaissance of patrols detailed by the company or battalion commander. The missions of night patrols may be to gain information, to capture prisoners, or to harass the enemy. Such patrols are always assigned a definite mission. The officer sending out the patrol determines the time and point at which it leaves the lines, the route, and the probable time of return.

b. Night patrolling is systematically organized. For troops just commencing the occupation of a stabilized sector the reconnaissance should embrace: the accessory defenses in front of the position; shell craters and old trenches between the position and that of the enemy; and the hostile wire and listening posts.

(1) Reconnaissance of our own wire is carried out to ascertain its condition and to locate gaps for the purpose of entry and exit.

(2) Shell craters and old trenches are next reconnoitered to determine whether they are occupied by the enemy and if so, the strength of the post, the state of wire protection, and the practicability of raiding the post.

(3) Reconnaissance of the hostile wire usually seeks to determine—

Strength, height, depth, thickness, or density of wire,
nature of construction and number of bands.

Distance from inner band to hostile front line; distance
between bands or wire.

Gaps, location, width, whether left purposely by enemy
or cut by friendly fire.

Effect of our recent gun or mortar fire.

Location and nature of antitank mines.

■ 288. SNIPING.—*a.* Fire for the purpose of wearing the enemy down is organized by company and platoon commanders. In the execution of harassing fire, observers and snipers frequently work together, the observer indicating the targets discovered to the sniper and observing the results of his fire. Sniping posts are located and sectors of fire assigned to each post so that the entire front is covered.

b. Sniping fire is usually delivered from specially constructed posts. Concealment is the most important element in the construction of the posts and may be attained by the adaptation of various objects, such as an old boot with a loophole cut in the heel, spool of barbed wire, a dummy sandbag, or tree stump. Background is given careful consideration. A curtain is provided for darkening the entrance.

c. Snipers are protected by the use of camouflaged clothing and disguises improvised by using grass or leaves, smearing the hands, face, and equipment to harmonize with surroundings.

d. Smoking is prohibited in the post; glittering objects are kept out of sight; the rifle barrel does not protrude far beyond the loophole; and care is taken that the muzzle blast does not kick up dust and betray the location of the firer.

e. Targets are usually most numerous at dusk or in the early morning. The sniper is at a disadvantage if facing the sun. If possible he selects the time for firing when the light is full on the ground where the targets are expected and he himself is in a comparatively bad light.

f. Provision is made for night sniping. The rifle may be laid and clamped on selected objectives (gaps in the hostile wire which probably will be repaired at night, loopholes, entrances to shelters, exposed points in approach trenches, machine guns spotted by their flashes). Provision is made for night firing with the rifle not clamped by the improvisation of a visible line of sights or the use of telescopic sights. With a bright moon, effective fire at a range of 200 yards can be delivered with the telescopic sight. A line of sight may be improvised by attaching a piece of white cotton to the front sight and a strip of white tape along the barrel from the front to rear sight, and by pasting to the rear sight a piece of white cardboard with a hole punched in the center. An effective range of 30 to 50 yards may be obtained by using these aids.

g. Sniping fire may be used in conjunction with the operation of patrols to distract the attention of hostile sentries at the point to be reconnoitered.

h. To draw targets or locate hostile snipers, some sort of decoy may be successfully employed. Effort should be made to locate the direction from which the hostile sniping comes. Any casualty from rifle fire should be reported and investigated and special efforts made to locate the hostile snipers.

CHAPTER 3

HEAVY WEAPONS COMPANY UNITS

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SECTION I

MACHINE-GUN SQUAD AND SECTION

■ 289. REFERENCE.—For composition, armament, and equipment see appendix II.

■ 290. DUTIES OF LEADERS.—*a.* The section leader is the instructor of his section. He conducts his section in approach march and displacement as prescribed for the rifle squad. In combat, he exercises the functions of fire control in all cases where the section is assigned a sector of fire by the platoon leader.

b. (1) The squad leader is responsible for the execution of the fire orders of the section leader and the fire discipline of the squad. When assigned an approximate position by the section leader, he fixes the exact location and directs the preparation and occupation of the gun position, camouflage and intrenchment where required, and the movement of the gun into position.

(2) He instructs the members of his squad in their duties as prescribed in FM 23-55 and supervises their conduct in combat. In defense he supervises the preparation of the emplacement, its camouflage, and the dispositions of members of the squad. Before beginning the construction of an emplacement, he places the gun in an emergency firing position prepared to cover the assigned sector of fire. He details one member of the squad to maintain surveillance over his fire sector and to man the gun if emergency requires.

(3) Upon completion of the preparation of the emplacement and clearing of field of fire, the corporal causes the gun to be mounted for the execution of its assigned mission.

■ 291. MOVEMENT INTO POSITION.—*a.* The section leader conducts his section from the off-carrier position to the firing position area assigned the section by the platoon leader. He places the section in a cover position and selects an observation post with a field of view over assigned targets or sector of fire. He fixes the approximate firing position for each gun.

b. The gun emplacements are close enough together for immediate control but far enough apart to avoid destruction of both guns or crews by a single shell burst. Generally in open positions the machine guns are separated by a distance of about 50 yards. They are rarely farther apart than hailing or arm-and-hand signaling distance.

■ 292. FIRE CONTROL AND DISCIPLINE.—*a.* The section is the basic fire unit. Guns are usually employed by section in positions from which both guns can cover the same targets or sectors of fire.

(1) In masked positions, the fire of the section is ordinarily controlled from a platoon observation post under the direction of the platoon leader. The section leader executes the orders of the platoon leader, posts himself at or near the gun emplacements, checks the laying and sight setting, regulates expenditure of ammunition, and otherwise supervises discipline. He instructs squad leaders as to the supplementary open positions designated by the platoon leader for occupation in emergency and the sectors of fire for each gun. He informs them as to the signals for the occupation of such positions. In emergency he engages targets from supplementary positions on his own initiative.

(2) In open positions, the section is usually assigned a sector of fire. The section leader controls the fire of the section, designates reference points and order of fires, announces range and class of fire (fixed, traversing, searching), targets, fixes ammunition expenditure for each fire, and regulates the opening of fire.

b. For examples of fire orders see FM 23-55.

■ 293. **DISPLACEMENT.**—The machine-gun section is displaced as a unit to new locations. The section moves either to position areas designated by the platoon leader or to an area reconnoitered and selected by the section leader pursuant to the orders of the platoon leader.

a. In displacements to masked positions, the section leader conducts his section to position areas designated by the platoon leader.

b. Displacements to open positions where fire control by the platoon leader will be impracticable are usually preceded by reconnaissance by the section leader. Before initiating a displacement, the section leader is informed as to the targets, target area, or sector which his section will cover in the new position. He moves forward to the general area to be occupied, observes the location of the front-line troops and enemy activity, and locates an observation post and approximate gun positions from which the targets, target areas, or sectors assigned to the section can be observed and taken under fire. He locates a cover position in close proximity to the firing positions to which he directs the movement of the section in accordance with prearrangements, and where he gives instructions to the squads for the occupation of the gun positions and the preparation of fire.

SECTION II

MACHINE-GUN PLATOON

■ 294. **REFERENCES.**—a. For composition, armament, and equipment see appendix II.

b. For mechanical training, technique of fire, and gun drill see FM 23-55.

c. For extended order drill see FM 22-5.

d. For the individual machine gunner see paragraph 214b.

■ 295. **DUTIES OF COMMAND GROUP.**—a. *Platoon leader (lieutenant).*—Leads the platoon as a unit or by section echelons in approach march; exercises functions of fire direction by assignment of targets, target areas, or sectors of fire, and firing position areas; in masked positions, controls the fire of the platoon by designating targets, fixing number of rounds for each fire, giving commands or signal for opening fire. He

directs movement into alternate or supplementary positions and controls displacement.

b. Platoon sergeant.—Second-in-command and assistant to platoon leader; in movement brings up the rear of the platoon, checks straggling, and follows foot elements of the rearmost echelon to new locations; keeps constantly in touch with the situation to the rear and on flanks of the platoon.

c. Instrument corporal.—Has charge of fire-control equipment; assists the platoon leader in setting up firing data; installs the platoon observation post and supervises its operation; serves as a member of the reconnaissance detail in reconnaissance of positions and in displacements.

d. Transport corporal.—Conducts carriers to off-carrier position designated by platoon leader; moves carriers as directed by the transport officer when released by the platoon leader; displaces the carriers to new positions when directed; supervises concealment or camouflage of carriers in position and at all halts.

e. Chauffeur.—Drives the command car; moves as directed by platoon leader; conceals and camouflages the car at all halts; carries out instructions of the transport corporal when released by platoon leader.

f. Two messengers.—One assists instrument corporal and mans observation post; one accompanies platoon leader as communication agent.

■ 296. **APPROACH MARCH.**—*a.* The development order of the company commander assigns the platoon its initial location and march objective; direction of the advance; general protective ground missions; whether dispositions should be taken for uncovered approach; specific antiaircraft missions.

b. The platoon may be disposed with sections abreast or distributed in depth. Distribution with sections abreast is generally best adapted to rapid movement over open terrain. Distribution in depth is indicated when it is desired to take advantage of covered routes of advance or to avoid obstacles.

c. Dispositions are varied throughout the approach in accordance with changes in the nature of the terrain and the situation. Where the terrain does not permit rapid movement of the carriers over open terrain, the foot elements and the carriers may move together. On favorable terrain,

it is best to have the carriers follow the foot elements by bounds in order to take advantage of their speed of movement.

d. Carriers halt for antiaircraft action. Antiaircraft carrier weapons are at all times manned and alert for action. In critical situations, especially when advancing with an exposed flank, it will frequently be necessary to advance by section echelons and by bounds, in an advanced state of readiness for action. Movement of foot elements and carriers is so conducted that carriers are within arm-and-hand signaling distance of their units at all times.

e. During an echeloned advance, the platoon leader, by personal observation and the use of the personnel of his command group, maintains constant surveillance over the route of advance and areas of possible enemy interruption. He takes post where he can observe and direct the movement of his leading element. When necessary, he posts observers in key observation points so as to cover the entire zone of advance of the platoon and the terrain on the flanks.

f. The platoon leader usually controls the direction of advance by designating the command group as the base unit and directing its movements. He reconnoiters especially for crossings over terrain features creating obstacles for the platoon transport. Two men are detailed as antiaircraft and antitank lookouts. When obstacles prevent the carriers following over the same general route as the platoon and require them to make a considerable detour, the movement of the platoon is usually under company control. In such cases the platoon leader decides whether to move his guns off carriers while the transport detours or whether the detour will permit prompt rejunction of the men and guns. Measures are taken for the passage of a defile as directed by the company commander.

■ 297. INITIAL RECONNAISSANCE.—Upon summons by the company commander, the platoon leader directs the platoon sergeant to move the platoon to the approach objective already designated or to a position in readiness, and, accompanied by the instrument corporal and a messenger, joins the company command group. Upon receipt of instructions fixing the off-carrier position and the firing-position area, the platoon sergeant moves the carriers to the off-carrier position;

the platoon leader reconnoiters the assigned firing position area and selects an observation post affording the clearest available field of view over his target area or fire sector. He identifies points occupied by the enemy or, if no enemy activity has been observed, points of likely enemy occupation. He notes the dispositions of friendly rifle elements. Based on this reconnaissance, he determines the method of occupation of the position area. He locates the approximate gun positions or assigns position areas to the sections and directs them to move into position.

■ 298. FIRE DIRECTION AND CONTROL.—*a.* Whenever practicable, the platoon leader controls the fire of the platoon guns. He locates the approximate gun positions, assigns targets, fixes ammunition expenditures, and gives commands or signals for opening fire. Otherwise he exercises the functions of fire direction by assignment of target areas or fire sectors to the section leaders, who then exercise fire-control functions. (See appendix I.)

(1) In masked position, the platoon leader usually exercises fire-control functions. However, wide separation of the sections or difficulty of communications may require delegation of these functions to section leaders.

(2) In open positions, delegation of fire-control functions to section leaders is usually necessary. However, crest positions affording ample cover in their immediate rear may make possible platoon fire control as for masked positions. In this case, gun crews and weapons remain in cover positions until ordered to occupy fire positions by the platoon leader.

b. As a general rule, most effective results are obtained by the surprise concentration in respect to both place and time of the fire of all the platoon guns. Where time is available, fires on the various targets included in the platoon target areas or sectors of fire are, where practicable, prearranged and executed on order of the platoon leader. He fixes the number of rounds to be fired on each target.

c. Observers posted from the platoon command group maintain continuity of observation over the platoon sector or target area. They select key terrain features as reference points and determine range and other firing data to facilitate the

engagement of targets of opportunity appearing in the field of fire.

d. The platoon observation post should be close enough to the gun positions for easy transmission of orders by arm-and-hand signals. Where the platoon occupies masked positions, the observation post is ordinarily on the mask (crest or other commanding terrain feature) or other nearby commanding feature. It should permit continuous observation of the location and movements of the attacking echelon and the fire sector or target areas assigned to the platoon. Supplementary posts may be established for observation of the situation on the flanks and antiaircraft warning missions under the direction of the platoon sergeant.

■ 299. ATTACK.—*a.* The platoon leader receives instructions covering the following:

(1) Information of the enemy and our own troops, including the battalion plan of attack; assembly positions, objectives, and lines of departure assigned to the leading rifle companies; whether tanks are to lead the attack.

(2) Battalion base of fire, including position areas and missions of mortars; mission and position area of the machine guns.

(3) Primary and secondary fire missions assigned the platoon; general position area; sector of fire or target areas; priorities of fire; hour, signal, or other arrangements for opening fire, especially when machine-gun preparation fires are to be conducted.

(4) Allotments of ammunition for specific missions; general arrangements for ammunition and water replenishment.

(5) Communications within the company; whether or not a central company control station is to be set up; location of the company and battalion command posts.

b. Where tanks lead the attack, the platoon leader assigns positions and sectors of fire to each section. He also assigns firing positions for occupancy in accordance with the instructions of the company commander when the advance of the rifle units commences.

c. The platoon leader surveys the proposed zone of advance of rifle units and seeks to establish an initial safety limit for fire so as to engage targets opposing the advance of the

leading echelon; overhead fire can seldom be placed closer than 400 yards in front of advancing rifle troops. As soon as practicable, the platoon leader establishes a second safety limit for his fires, to become effective when the rifle units have become closely engaged. He fixes a danger zone in front of his machine guns and, when necessary, posts sentinels or takes other measures to prevent messengers or other personnel from passing its limits. Where the attack of rifle units is launched within midrange of the hostile position, the initial machine-gun targets are normally rear elements which might endanger the attacking echelon, such as heavy weapons, unarmored vehicles, and counterattacking troops disclosing themselves within the machine-gun field of fire. Reverse slopes in the immediate rear of the initial attack objective, known or suspected to be occupied by hostile reserves, may be subjected to searching fire.

d. The platoon leader habitually employs his platoon as a fire unit, using overhead fire against targets in the initial attack objective or in the depth of the enemy dispositions, or long-range fires against targets in the zone of an adjacent unit. Data are prepared to each key point or enemy area that is visible from the platoon observation post and suspected of containing hostile supports (weapons or troops). Targets are engaged when disclosed by enemy movements or fire.

e. Flank protection missions are habitually accomplished from supplementary direct fire positions. These missions become of exceptional importance when the advance of the battalion creates an exposed flank. The platoon leader maintains constant observation of the situation on the flank of the battalion as well as the location of the attacking echelon. He reconnoiters positions for flank protection fires whenever the battalion offers an exposed flank, with especial regard to enemy areas especially favorable for launching a counterattack. (See fig. 19.)

f. Whenever platoons occupy masked primary positions, the platoon leader selects for use in emergency open supplementary positions and sectors of fire covering hostile approaches to primary gun positions. Section leaders are informed as to the location of the supplementary positions, the

signal for occupation of same, and the method of surveillance of emergency sectors. Usually one observer in the platoon observation post is assigned this duty. If this is impracticable, section leaders may be directed to maintain their own surveillance of emergency sectors.

■ 300. DEFENSE.—All guns of the platoons are assigned defensive missions as described in paragraph 338.

a. A platoon in defense may be assigned fire sectors in the main line of resistance or long-range fire missions from positions removed from the main line of resistance. Machine-gun positions in advance of the main line of resistance are supplementary to primary positions in or in rear of the main line of resistance, to which they must be withdrawn in time to participate in their primary missions. (See par. 338c.)

b. Where a platoon occupies positions removed from and to the rear of the main line of resistance, all or part of the guns may be retained in these positions to deal with any hostile elements which succeed in effecting a penetration. Guns assigned to these positions deliver long-range overhead fires, either direct or indirect, in accordance with the procedure described in paragraph 338.

c. Guns sited in advance of the main line of resistance for long-range fires ordinarily fire from open positions. The platoon leader makes provision for timely withdrawal to positions in or in rear of the main line of resistance, as nearly as practicable, by covered routes. (See par. 338c.)

d. The platoon leader points out to squad and section leaders the course of the main line of resistance, indicates the gun positions and sectors of fire, and prescribes the field works to be executed (intrenchments, accessory defenses). He checks arrangements for final protective fires; insures that all personnel understand the signal for bringing down such fires; checks arrangements for supply at the guns; verifies the establishment of alternate positions and arrangements by squad leaders for their occupation.

e. The positions or rifle company light machine guns, grouped with the heavy machine guns on the main line of resistance, are visited by the machine-gun platoon leaders

in order to insure that sectors of fire of the light guns are fully coordinated with the battalion plan of fire.

SECTION III

81-MM MORTAR PLATOON

■ 301. REFERENCES.—*a.* For composition, armament, and equipment see appendix II.

b. For mechanical training, mortar drill, and technique of fire see FM 23-90.

c. For extended order drill see FM 22-5.

d. For the individual mortar gunner see paragraph 214b.

■ 302. CHARACTERISTICS.—The 81-mm mortar combines mobility and power in greater degree than any other supporting infantry weapon. Its projectiles have an explosive effect comparable to 75-mm projectiles. The weapon can be manhandled for considerable distances without causing excessive fatigue to the crew. The useful range of the mortar is about 2,000 yards. Range is limited by the requirements of observation rather than the ballistic properties of the piece. At the longer ranges, accuracy of fire is greatly decreased. Due to its high-angle trajectory, the mortar is capable of taking advantage of deep defilade and of exercising a wide choice in the selection of positions. It is habitually fired from masked positions. When under battalion control, it normally operates in a zone extending from 300 to 800 yards in rear of the leading troops.

■ 303. DUTIES OF COMMAND GROUP.—*a. Lieutenant.*—Platoon leader (for duties see par. 304).

b. Platoon sergeant.—Second-in-command and assistant to platoon leader; conducts the platoon in the approach march when platoon leader goes forward to join battalion commander (see par. 304).

c. Instrument corporal.—Has charge of fire-control equipment; assists the platoon leader in the reconnaissance of positions and in setting up fire data; installs the platoon observation post and supervises its operation.

d. Transport corporal.—Conducts carriers to off-carrier position designated by platoon leader; moves carriers as di-

rected by the transport officer when released by the platoon leader; displaces the carriers to new positions when directed; supervises concealment or camouflage of carriers in position and at all halts.

e. Chauffeur.—Drives the command car; moves as directed by the platoon leader; conceals and camouflages car at all halts in approach march and combat.

f. Messenger.—Accompanies platoon leader.

■ 304. DUTIES OF LEADERS.—*a.* The platoon leader maintains contact with the company commander at all times in combat, receives from him his fire missions, and in the proper case makes recommendation for the employment of the mortars. He distributes the missions to section leaders, reconnoiters and selects position areas when time permits, or directs reconnaissance by section leaders.

b. The section leader reconnoiters the position area assigned and indicates the approximate position for each mortar emplacement. He locates observation points which will permit each squad leader to observe the target areas or sector of fire for his mortar. Usually one of the squad observation posts will serve for the section leader. Where adequate observation near the mortar positions is not available, the section leader may elect to control the fire of the section himself and establish observation posts for control of both mortars.

c. The squad leader exercises the functions of fire control and establishes an observation post that will permit him to observe fire on the target and to transmit his commands to the crew by voice or arm-and-hand signals. He instructs the members of his squad in their duties as prescribed in FM 23-90 and maintains fire discipline during action. When assigned an approximate position by the section leader, he fixes the exact location and directs the preparation of the emplacement (camouflage and intrenchment where required) and the movement of the mortar into position. When the section or platoon leader conducts the fire of the squad, the squad leader is responsible for the proper execution of the orders of the leader controlling the fire and the exactness of the performance of duties by the mortar crew.

■ 305. ROUTE MARCH.—When the battalion marches in two echelons, the platoon leader marches with the foot echelon.

■ 306. APPROACH MARCH.—*a.* The platoon leader commands the platoon as a unit during approach march. The development order of the company commander assigns the platoon leader his initial location, initial march objectives, and direction of advance.

b. The platoon may be disposed with sections abreast or distributed in depth. Distribution with sections abreast is generally best adapted to rapid movement over open terrain or for passing crests or other conspicuous terrain lines. Distribution in depth is indicated when it is desired to take advantage of covered routes of advance or avoid obstacles. Dispositions are varied throughout the approach in accordance with changes in the nature of terrain and the situation. Where the terrain does not permit rapid movement of the carriers, the foot elements and the carriers move together. On favorable terrain, it will generally be advantageous to have the carriers follow the foot elements by bounds.

c. When, during the advance, the platoon leader encounters obstacles to the movement of his motor transport, he conducts reconnaissance for practicable detours, directs the motor movement accordingly, and proceeds himself directly to the assigned objective. Usually where considerable detours are to be made, they will be executed under the direction of higher commanders. Throughout the approach march, the platoon leader conducts reconnaissance for the location of gassed and shelled areas and leads the platoon by minor detours, or in the case of heavily shelled areas directs the sections to move by individual rushes to an assigned objective, taking advantage of lulls in hostile fire.

■ 307. INITIAL RECONNAISSANCE AND ORGANIZATION OF BASE OF FIRE.—*a.* On summons of the company commander, the platoon leader directs the platoon sergeant to move the platoon to the march objective already designated or to a position in readiness, and then, accompanied by the instrument corporal, joins the company command group. He executes such reconnaissance as may be directed by the company commander or as may be required as a basis for the organization of the bat-

talion base of fire. He notes points of known or suspected hostile occupation, areas defiladed from the fire of flat-trajectory weapons, and the dispositions of friendly rifle elements. Based on this reconnaissance, he determines the method of occupation of his position area and fixes the off-carrier position.

b. Upon receipt of instructions fixing the off-carrier position and the firing position area, the platoon sergeant moves the carriers to the off-carrier position; the section leaders reconnoiter the assigned firing position areas and select an observation post affording the clearest available field of view over the foreground of the position within midrange of the line of departure.

c. On completion of their reconnaissance, the section leaders locate approximate mortar positions and call the mortar squads forward to their initial positions.

d. The squad leaders make the detailed reconnaissance for the exact location of the mortar emplacements.

■ 308. FIRING POSITIONS.—The factors exercising most influence on the location of firing positions include: location of targets and friendly front-line troops; requirements of cover and observation; fire direction by the company commander and the platoon leader; facility of ammunition supply.

a. In all cases, the mortar positions must be within effective range of the targets and afford observation of the targets and friendly troops from observation posts, in general, within arm-and-hand signaling distance from the emplacements. Exceptionally, where for defensive reasons it is desirable to echelon the mortar positions, the observation post may be removed at greater distances from the emplacements, and fire control exercised through wire communication by the platoon leader or by section leaders. The limiting usable range to targets is 2,000 yards, and the distance to the front-line troops should not exceed 800 yards. The normal targets of the mortar are located within a zone of from 200 to 600 yards in front of the front-line troops. (See fig. 16.) Smoke objectives may be considerably more distant. The mortar emplacements should be close enough to the company command post to permit rapid and easy communication. Only where terrain restricts visibility of targets and the front-line troops, should the mortars

be advanced beyond the distance permitting company direction. In such cases, the mortar sections should be placed at the disposition of rifle company commanders.

b. As a rule, the mortars fire from fully defiladed positions. The characteristics of the piece, the difficulties of ammunition supply, and the weight of the ammunition practically exclude the occupation of open positions.

c. Mortar emplacements are separated from each other and other critical installations (observation and command posts, other heavy weapons emplacements) to avoid simultaneous destruction by a single shell. If practicable, each emplacement is so located as to be beyond the zone of dispersion of enemy projectiles directed on critical targets of enemy fire.

d. In defense, alternate positions are essential. Duplicate range cards are prepared for fires from each position.

■ 309. FIRE MISSIONS.—*a. Attack.*—(1) The mortars fire on definitely located point targets defiladed from the fire of flat-trajectory weapons. Area targets requiring zone fires are artillery targets. The necessity of conserving ammunition supply demands careful discrimination of mortar targets from those pertaining to the machine guns on the one hand and the artillery on the other. Targets especially suited to mortar fire include road cuts, railroad embankments, reverse slopes, intrenched heavy weapons.

(2) The employment of mortars in support of a tank advance is exceptional. The hostile antitank weapons revealing themselves by flashes or muzzle blast are appropriate targets for flat-trajectory automatic fires. Mortar fire against antitank weapons is ordinarily limited to preparatory fires in conjunction with artillery, when ample ammunition is available.

(3) Mortar fires are for the most part fires against personnel. The heavy shell is employed in destruction fires against enemy shelters and accessory defenses. Smoke shell is used to lay down a screen or to blind observation at a particular locality in enemy territory.

(4) Mortars may be assigned missions supplementing artillery in preparatory fires.

b. *Defense.*—(1) The mortars are employed to cover dead spaces in the bands of machine-gun fire in accordance with the battalion fire plan, and to fire on defiladed areas where

hostile forces might assemble for attack. These fires are coordinated with the barrage and counterpreparation fires of artillery.

(2) Each mortar is assigned primary and secondary targets. The primary target is the target included in the battalion final protective fires. Secondary targets are numbered and assigned priority. They are fired on command or signal. They may include targets in the sector of the battalion or in those of adjacent battalions. Targets in a lower priority may be engaged in emergency where no signal is received and no target in higher priority is presented.

■ 310. OCCUPATION OF POSITION.—*a.* The squad leader directs the installation of the mortar in its firing position, the camouflage of the piece and its emplacement, and the adoption or construction of cover for the piece and the crew.

b. In the occupation of the observation post, care is taken to avoid movement and exposure that would attract hostile attention and fire.

c. In the prolonged occupation of a defensive position, the formation of paths leading to mortar emplacements and observation posts is, as far as practicable, avoided. Disclosure of the location of emplacements by unavoidable paths is best prevented by carrying the paths beyond the emplacement.

■ 311. FIRE DIRECTION AND CONTROL.—*a.* As a general rule, most effective results are obtained by the surprise concentration, in respect to both place and time, of the fire of both mortars of a section. In some situations it may be advantageous to prepare data for the concentration of the fires of the platoon on certain targets. Usually the requirements of cover and the necessity for providing mortar support at different places in the battalion zone make platoon concentrations impracticable. Mortars are not emplaced in battery to perform artillery missions.

b. Whenever practicable, the company commander designates the target areas and fixes conditions for opening fire. When as the result of restricted visibility or unusual extension of the battalion front, the fire of the mortars cannot be directed by the company commander, the battalion com-

mander attaches the mortars either by squad or by section to one or more rifle companies of the leading echelon. In such case the rifle company commander directs the fire of the 81-mm as prescribed for the 60-mm mortar.

c. The mortar platoon leaders maintain close liaison with artillery observers in the battalion zone and seek to combine their fires with those of the supporting artillery and the action of the leading rifle echelon.

d. The mortar squad is the basic fire unit. The section leader, or occasionally the platoon leader, may control the fire of either a section or the platoon by the liaison method, using a forward observer. This method finds especial application in the organization of battalion fire bases. Usually, squad leaders exercise fire-control functions. The section leader directs the fire of the squads by the assignment of fire sectors or target areas and indication of the order or priority of fires. His instructions should be given while the section is still assembled. During periods when the squads are separated by displacement, both squads may be assigned identical fire missions. Squad leaders regulate their fire action so as to support the general plan of action of the battalion.

e. When attacking weak resistance or enemy elements dispersed by attack, and when battalion fire bases are not organized, the mortars are usually put into action by attachment to rifle companies or by the assignment of missions in support of a particular rifle company.

■ 312. **DISPLACEMENT.**—*a.* Displacement is so regulated as to cause as little interruption as possible in the continuity of mortar support. In particular, displacement is avoided as far as possible during any period when the leading rifle echelon is in movement.

b. The situation determines whether the platoon should displace as a unit or by section echelons. The latter method is usual when continuity in mortar support must be maintained. The section displaces as a unit or by squad echelons, depending on the situation and the method of distribution of platoon fire missions. Unit displacement is indicated in cases where sections have been assigned identi-

cal fire missions or where maintenance of continuity in mortar support is not required.

c. Displacement by squad echelons is essential where sections have been assigned separate fire missions and continuity in the section fire support must be maintained. Displacements are best effected during lulls in action and when movement and fire attack are not immediately contemplated.

d. Displacement is executed either in conjunction with a general displacement of the battalion fire base or as an independent operation. The mortars are displaced regardless of the action in respect to other elements of the heavy weapons company when they can no longer carry out their missions on the battalion fire base.

e. (1) The movement of the mortars in a battalion fire base displacement is regulated by the company commander. Reconnaissance of the new base is carried out under his direction by the reconnaissance officer and personnel from the command group. Based on this reconnaissance the company commander assigns a new position area to the platoon.

(2) The company commander may order the independent displacement of the platoon to a new position area when notified by the platoon leader that observation of its targets or of the attacking echelon has become deficient. In either case the company commander indicates the new position areas to be occupied and, when practicable, the fire missions to be executed.

f. The platoon leader checks ammunition supply, prearranges the movement of his sections, and accompanied by the instrument corporal and a messenger, moves forward for the reconnaissance of the new position area and the most favorable route thereto for the displacement of the sections. He locates the approximate section position areas and sends back the messenger to guide them to the new positions. The platoon leader and the instrument corporal take the necessary action for the preparation of fires prior to the arrival of the section.

g. The situation and the terrain determine whether the displacement of the mortars will be effected on motor carrier or by manhandling, or a combination of both. The platoon leader locates the new carrier position or, when necessary,

releases the carriers to the control of the transport officer. Detours in displacement through zones of adjacent battalions are permissible to take advantage of defiladed routes.

■ 313. COORDINATION WITH RIFLE UNITS.—*a.* When the mortars are emplaced in the areas of the front-line companies, the platoon leader and, in the proper case, the section or squad leaders, establish contact with local commanders and acquaint themselves with their situation and intentions. In all cases they endeavor to regulate their fires in accordance with the situation and action of the rifle units. In particular, they intensify their fires at the moment of assault or on discovery of hostile assembly for attack (counterattack).

b. Mortar fire ceases or lifts either at a prearranged signal, at a designated hour, or on the initiative of the mortar unit leaders when observation indicates that further fire will endanger friendly troops. (See fig. 19.) Mortars then take under fire defiladed areas in rear of the leading hostile troops where enemy heavy weapons may be emplaced or where hostile forces may be expected to assemble for counterattack.

■ 314. SIGNAL COMMUNICATIONS.—*a.* Fire control of mortar units is normally effected by command or by arm-and-hand and conventional signals.

b. The technical equipment is furnished for communication between the observation posts and the mortar emplacements and is employed in those cases where terrain conditions require observation posts to be established at such distance from the emplacements as to render fire control impracticable by the nontechnical means of communication.

c. Conventional signals must be known to all leaders and gunners.

■ 315. USE OF MOTOR CARRIERS.—*a.* The mortars are transported on carriers whenever the terrain and the situation permit. They are generally so transported prior to the organization of the initial base of fire. During an attack, covered lines of advance and availability of a cover position for the carrier in advance of the position occupied sometimes make it possible to effect displacements in whole or in part on carrier.

b. Movement into firing position is effected by manhandling. Off-carrier positions are selected at the most advanced locations that afford cover for the carrier and can be reached without undue exposure to hostile fire. A movement of varying length by manhandling is nearly always required by the terrain and the situation.

c. Carriers must be available sufficiently close at hand at all times during an attack for the transport of mortars that have lost distance by reason of manhandling difficulties and rapid advance of the attacking echelon.

SECTION IV

BATTALION ANTITANK PLATOON

■ 316. REFERENCES.—*a.* For composition, armament, and equipment see appendix II.

b. For mechanical training, gun drill, and technique of fire see FM 23-60.

c. For extended order drill see FM 22-5.

d. For the individual machine gunner see paragraph 214b.

■ 317. CHARACTERISTICS AND MISSIONS.—*a.* The battalion anti-tank weapon has the following characteristics:*

(1) High initial velocity.

(2) Adequate armor penetration at close and midrange.

(3) High rate of fire.

(4) High mobility and low relief relative to other antitank weapons, permitting movement by manhandling for considerable distances and facilitating unobtrusive occupation of firing position; weapon and crew occupy a small area and are easily concealed.

b. The characteristics of this weapon indicate employment in close proximity to the troops to be defended. It employs direct fire and engages ground targets only. In moving situations, it will frequently be the principal reliance of the troops for immediate antitank security.

* NOTE.—The status of developments in the design of antitank weapons of the lighter class makes it impracticable to give more than the general characteristics of the battalion weapon at this time.

■ 318. DUTIES OF COMMAND GROUP.—*a. Lieutenant.*—Platoon leader.

b. Platoon sergeant.—Second-in-command and assistant to the platoon leaders; in off-carrier movement brings up rear of the platoon, checks straggling, and follows foot elements of the rearmost echelon to new locations; keeps constantly in touch with the situation to the rear and on flanks of the platoon.

c. Instrument corporal.—Has charge of fire-control equipment; assists the platoon leader in setting up firing data; installs the platoon observation post and supervises its operation.

d. Transport corporal.—Conducts carriers to off-carrier position designated by platoon leader; moves carriers as directed by the transport officer when released by the platoon leader; displaces the carriers to new positions when directed; supervises concealment or camouflage of carriers in position and at all halts.

e. Chauffeur.—Drives the command car; moves as directed by the platoon leader; conceals and camouflages car at all halts.

f. One messenger.—Remains with platoon leader as communication agent.

■ 319. METHOD OF MOVEMENT.—*a. On weapons carrier.*—The gun, mount, sight, accessories, and ammunition are moved on the carrier. This method is desirable whenever the situation and terrain permit. It is the habitual means of movement during march, approach, and pursuit.

b. Offcarrier by hand.—The gun, mount, sight, accessories, and ammunition are moved by hand. Individual loads are sufficiently light to permit manhandling over considerable distances.

■ 320. CREW REQUIREMENTS.—Three men are required to keep one weapon in operation. All members of the squad are trained to handle the weapon, and replacement of casualties is automatic.

■ 321. DUTIES OF PERSONNEL.—*a. Platoon leader.*—(1) The platoon leader functions under the company commander until

detached by assignment of a tactical mission by the battalion commander (par. 322a). Further coordination by the company commander is limited to arrangements for rationing and other administrative matters.

(2) In approach march, the platoon leader controls the movement of the platoon on carriers in accordance with the instructions of the battalion commander. He selects routes and successive locations of offcarrier positions with a view to the readiness of the platoon for the antitank defense of the battalion. When the platoon moves as a unit offcarrier, the platoon leader leads the platoon as prescribed in FM 22-5.

(3) In combat, the platoon leader, whenever practicable, assigns sectors of fire and firing position areas; where extensive fronts must be covered he assigns the sections missions of providing antitank security for designated rifle companies.

b. Section leader.—The section leader is the instructor of his section. He conducts his section in approach march and displacement in general as prescribed for the rifle squad. In combat, he may exercise the functions of fire control in all cases where the section is assigned a sector of fire or the protection of a designated rifle company by the platoon leader. When the platoon leader assigns each gun a sector of fire, the section leader supervises the operation of both squads, if practicable, or accompanies the squad assigned the most important or most difficult mission.

c. Squad leader.—(1) The squad leader is responsible for the execution of the fire orders of the section leader and the fire discipline of the squad. When assigned an approximate position by the section leader, he fixes the exact location and directs the preparation and occupation of the gun position, camouflage, and intrenchment where required, and the movement of the gun into position.

(2) He instructs the members of his squad in their duties as prescribed in FM 23-65 and supervises their conduct in combat. In defense, he supervises the preparation of the emplacement, its camouflage, and the dispositions of members of the squad. Before beginning the construction of an emplacement, he places the gun in an emergency firing position, prepared to cover the assigned sector of fire. He details one

member of the squad to maintain surveillance over his fire sector and to man the gun if emergency requires.

(3) Upon completion of the preparation of the emplacement and clearing of the field of fire, the corporal causes the gun to be mounted for the execution of its assigned mission.

(4) When the gun is assigned an independent mission, the squad leader exercises fire control and frequently has charge of the squad carrier.

(5) The duties of individual members of the antitank squad are prescribed in Basic Field Manuals.

■ 322. MISSIONS IN BATTALION APPROACH MARCH.—*a.* The development order of the battalion commander usually detaches the platoon for the execution of missions of antitank protection. The platoon moves in such distribution as most readily to afford protection to the rifle echelon which will constitute the principal combat element of the battalion or on which in emergency a deployment may be expected to be based. Depending on the extent of front considered available for hostile tank attack, the platoon moves as a unit or is distributed by sections. Distribution by sections is usually essential where an extensive front must be covered; in such case the antitank sections are distributed among the rifle companies in second echelon so as to protect a deployment and cover the front affected. When the platoon moves as a unit, it will generally move near the center of the front to be covered. If the situation clearly indicates danger of mechanized attack from a flank, the platoon marches on the menaced flank. The regimental antitank units are, however, the principal agencies of antitank flank protection; the battalion weapons are ordinarily concentrated for the frontal protection of the battalion. Changes in the distribution of the antitank weapons may be called for throughout the approach march.

b. (1) The platoon leader reconnoiters favorable routes of advance for the movement of carriers, location of obstacles and gassed and shelled areas, and routing by detours. The security of the platoon and its facility of movement must always give way to considerations bearing on the protection of the rifle units. Generally a detour of any importance re-

quires weapons off carrier and their manhandling forward to the next objective or the point of rejunction of the carriers.

(2) The platoon leader moves with the leading rifle company and reconnoiters firing positions on each objective of battalion movement. He is prepared to put his weapons into position immediately on arrival of the carriers. Unless the battalion is to move out immediately to its next objective, the antitank weapons occupy cover or fire positions during a halt.

(3) It is essential that the platoon leader precede his units by sufficient distance to insure such reconnaissance of the next bound of movement as will enable him to issue early instructions for any change in dispositions made necessary by changes in the situation or terrain conditions. He informs himself as to the objective of the next bound designated by the battalion commander and dispositions of the battalion for the movement or as to other plans for the employment of the battalion.

c. The antitank units are at all times prepared to meet a surprise mechanized attack. Crews must be trained to mount the weapons for fire in any direction in the shortest possible period of time. Carrier antiaircraft guns are at all times manned and alert for action.

■ 323. PREPARATION FOR ACTION.—*a. Initial reconnaissance.*—The battalion commander's order for assembly for action forms the basis for the platoon leader's preliminary reconnaissance of firing, cover, and off-carrier positions. Further orders for the occupation of an assembly or defensive position enable him to make a more complete decision as to his dispositions. The location of the rifle units and the field of fire which must be covered to protect them fix the position areas of the antitank weapons. Early determination of this area and prompt movement thereto from the off-carrier position are essential to the antitank security of the battalion.

b. Instructions to platoon leader.—The battalion commander's instructions to the platoon leader cover the following:

(1) Information of the enemy, especially types of hostile tanks operating in the vicinity, their last identification, and likely assembly areas for hostile tank attack.

(2) Information of friendly supporting troops operating in the battalion zone of operations, especially tanks, their pro-

posed movements and plan of action, identification marks and identifying signals; concentrations of supporting artillery.

(3) Information of the terrain (result of reconnaissance, aerial photographs, etc.), especially natural antitank obstacles and ground favorable to hostile tank action.

(4) Details of the battalion plan of action insofar as they indicate—

(a) Initial location and objectives of rifle companies.

(b) Location of battalion base of fire and prearranged fires of heavy weapons units.

(c) Location of battalion command post and observation post (where messages can reach the battalion commander via the shortest route).

(d) Mission of the platoon; sectors of fire and frontages to be covered or rifle units to be protected; general position areas.

(e) Liaison with rifle units (where messages can reach leading rifle company commanders).

(f) Any general instructions as to displacement.

(g) Location of battalion ammunition point and any general instructions as to routing of carriers proceeding thereto for resupply of ammunition.

■ 324. ANTITANK SECURITY IN ATTACK.—In the occupation of the battalion assembly area, the battalion antitank weapons are ordinarily assigned the mission of frontal antitank security. The sections are assigned overlapping sectors of surveillance. The platoon leader establishes an observation post from which he can best observe to the front and flanks over the entire battalion zone. Where the emplacements are widely separated, opening of fire is released to section or squad leaders. All personnel of the platoon must at all times be informed as to the location and movements of friendly tanks, identification and warning signals, and the distinguishing features of hostile tanks.

■ 325. ANTITANK POSITIONS.—a. The antitank weapons always occupy open firing positions. When employed by section, each piece is so emplaced as to cover the sector assigned to the other in addition to its own. In view of their limitation to close and midrange missions they should, when

practicable, be emplaced near the center of the sector of fire. The field of fire to the front and flanks within close range should be opened.

b. There should be cover in the immediate rear of the firing position for occupancy by the weapon and crew prior to opening fire. Artificial cover should be constructed where natural cover is not available. In hastily occupied positions, cover for the carriers at short distance from the firing positions greatly facilitates ammunition supply.

c. The gun emplacements should be separated by sufficient distance to insure against simultaneous destruction by a single projectile but close enough in each section to permit of effective control by the section leader. Movement to alternate positions is usually impracticable during hostile attack. Alternate emplacements are necessary in the prolonged occupation of a defensive position to avoid early identification and annihilation by the enemy's preparatory fires. Where the weapons have been firing from primary emplacements, advantage is taken of lulls in the hostile attack to move to alternate positions.

■ 326. OCCUPATION OF POSITION.—*a.* In view of the requirements of the troops for immediate antitank security, the occupation of supplementary positions beyond the immediate vicinity of the primary emplacement is seldom practicable. The section leaders indicate the approximate position of the weapons. The squad leaders fix their definite location, prepare the position, and the cover position, and take all practicable measures for the camouflage of the weapon emplacements and posts of the crew, and the clearance of the field of fire. Sufficient ammunition for prospective fires is laid down at the emplacement.

b. Wherever practicable, the squad initially occupies a cover position while the squad leaders observe and prepare the firing data. The gunner and assistant gunner move the weapon into position on the squad leader's order. The rest of the squad remain in the cover position. Except observers, both weapon and crew occupy the cover position when not firing. Observation is so organized as to cover the fields of view not only to the front but also to the flanks and rear of the position.

c. Supplementary emplacements for fire toward either flank are selected, prepared, and camouflaged.

■ 327. FIRE DIRECTION AND CONTROL.—*a.* In most situations, the section is the fire unit. The principal factors determining the echelon of command exercising the functions of fire direction and control over antitank units are the frontage to be defended, the nature of the terrain, and the extent to which the position is covered by antitank obstacles.

b. A section of antitank weapons is theoretically capable of defending, from closely adjoining emplacements, an unobstructed front determined by the effective antitank range. If a greater frontage is to be covered, the emplacements must be separated by a distance depending on the excess frontage. In such cases fire control is exercised by squad leaders. Section leaders direct the fire of the weapons by the assignment of approximate positions and sectors of fire.

c. Where the frontage to be covered permits, antitank weapons are habitually employed by sections (in pairs). Such employment offers the best practicable assurance that the loss or malfunction of a single weapon will not completely deprive a sector of its antitank defense. The platoon leader assigns primary and secondary sectors of fire to the antitank weapons, designates the off-carrier position, and fixes the conditions for opening fire.

d. Obstructions in the fields of fire may require widely separated emplacements and squad fire control, even where frontage would not exclude employment in pairs.

e. The commander exercising fire control locates reference points extending over his entire sector and marking the limits of effective fire of the battalion antitank weapon (variable limits depending on the type of enemy tank). These reference points delimit a zone beyond which a target will not be taken under fire. In attack and in delaying action, wider limits may be assigned for fire on armored or scout cars and other similarly armored vehicles.

■ 328. DISPLACEMENT.—*a.* Displacement to new positions may be made by direction of the battalion commander or on initiative of the platoon leader in accordance with the general instructions of the battalion commander.

b. Displacements of the antitank weapons in the course of an attack frequently consist of successive movements from one position in readiness to another from which they are prepared to go into firing positions in the zone of the attacking echelon and as close as possible to it.

c. The battalion commander may direct the displacement of the platoon to one or more general areas where positions will be occupied for the antitank protection of the attacking echelon; or he may direct the platoon to follow the attacking echelon by bounds. He may specify whether the platoon will move as a unit or by sections, and he may assign one or more routes for the movement. He may assign to the platoon the mission of support of the attacking echelon or attach sections or squads to, or place them in support of, designated rifle companies.

d. The limitations in range of the battalion antitank weapons require that they be maintained in as close proximity to the attacking echelon as the terrain and the situation permit. Where practicable and consistent with his mission, the platoon leader advances the platoon as a unit. Otherwise he moves both sections independently under control of the section leaders.

e. The platoon leader's instructions for displacement cover—

(1) Mission of the platoon—to occupy designated firing positions or positions in readiness for the antitank protection of the attacking echelon.

(2) Method of displacement—by platoon or by section; whether simultaneous or by section echelon.

(3) Mission of each section—to cover a designated sector or to protect a specified rifle company.

(4) Route or routes to be followed.

(5) Method of movement—whether by carrier or off carrier; whether carriers will move under platoon or section control or be released to the battalion transport officer; location of next carrier position; whether the weapons will remain on carrier or occupy cover positions.

(6) Proposed movement of platoon leader and next place where section leaders may communicate with him for further orders.

f. Following the debouchment of the infantry units from their assembly position and the advance beyond close range therefrom, the displacement of the antitank weapons to advanced positions becomes necessary. In liaison with rifle company commanders, antitank commanders make early provision for displacement to positions as close as practicable to the leading rifle units. Antitank commanders follow close behind the leading companies for reconnaissance of the new positions. They seek to locate cover positions within close range of the attacking echelon from which the pieces can be moved into firing positions. Advantageous positions in the attacking echelon itself or close in its rear may be offered for the antitank machine gun where terrain features offer a covered approach. Such will be especially the case where the attacking echelon occupies a crest position or a position slightly in advance of a crest or other continuous line of cover.

g. Where on exposed terrain, hostile fire has made necessary the separation of the carriers from the platoon, they follow the platoon by long bounds from one terrain mask to the next in accordance with the progress of the attack. They expedite the movement of any weapons that may have fallen behind by reason of the rapid advance of the attacking echelon.

h. As the rifle units advance to the assault, the antitank weapons should be well forward, usually within close range of the hostile position. Displacement in this phase is usually off carrier. On the delivery of the assault the weapons move into the lines of the rifle units prepared for defense against mechanized counterattack. On the capture of objectives they immediately establish antitank security on the successive bases of fire.

SECTION V

HEAVY WEAPONS COMPANY

■ 329. REFERENCES.—For composition, armament, and equipment see appendix II.

■ 330. CHARACTERISTICS.—The heavy-weapons company is the fourth lettered company of each infantry battalion (D, H, and M) and comprises the supporting and antitank weapons

of the battalion. It is combined under one commander for administrative and training purposes. The antitank platoon is included in the composition of the heavy weapons company for the purposes of supply, administration, and technical training only. The tactical missions of the antitank platoon are assigned by the battalion commander and are executed under his immediate direction or of the commander of the unit at whose disposition it may be placed by the battalion commander.

■ 331. COMPANY HEADQUARTERS.—The company headquarters is composed of a command group, consisting of personnel necessary for the coordination and control of the company in action, and an administration and supply group. Their duties are as follows:

a. Command group.—(1) The company commander exercises command of the entire company on the march and in covered approach, directs the combat action of the machine-gun and mortar platoons, and is in charge of the battalion transport when assembled.

(2) The reconnaissance officer, second-in-command, assists the company commander in terrain reconnaissance, in the reconnaissance of initial and subsequent firing and off-carrier positions, and in the computation of firing data; during approach march, represents the company commander at battalion headquarters and assists the battalion commander in his reconnaissance of assembly positions; has charge of reconnaissance details in displacements of the battalion base of fire.

(3) The first sergeant assists the company commander and is in charge of the operation of the command group during combat; maintains communication between the company commander and the transport officer.

(4) The reconnaissance and signal sergeant assists the reconnaissance officer and is in charge of communication within the company and between the company and the battalion command post.

(5) The bugler is trained as an observer.

(6) The orderly accompanies the company commander.

(7) One of the three messengers is especially trained as an observer.

(8) The transport sergeant assists the company commander in the management of the company motor vehicles.

(9) A motor mechanic is assistant to the transport sergeant.

(10) A chauffeur drives the company command car.

(11) Two motorcycle messengers drive the motorcycles assigned to the company headquarters.

b. Administration and supply group.—(1) This group consists of personnel provided to assist the company commander in the administration and supply of the company. The group includes—

Mess and supply sergeant, his assistant; the cooks, and cooks' helpers.

Supply sergeant and the armorer artificers.

Company clerk (corporal).

(2) During combat this group is located in the rear echelon, usually in or near the bivouac of the regimental train. The mess and supply personnel operate under the supervision of the regimental supply officer and the company clerk under the supervision of the regimental adjutant.

■ 332. ROUTE COLUMN.—*a.* Normally the foot and motor elements march separately in route column. When, in uncovered advance, the situation calls for the union of the carriers with the weapons crews, movement in route column will generally no longer be practicable, and development will be necessary. In route column the antiaircraft defense of the battalion falls to the carrier antiaircraft machine guns and the automatic rifles and rifles of the rifle companies. The heavy (cal. .30) machine guns may receive antiaircraft and ground defense missions upon development of the battalion.

b. The company commander designates a commander for each echelon. He usually takes personal command of the foot echelon and details the transport officer to command the motor elements.

c. When early development is expected, the company may move as a unit with its transport under company control. Carriers may move assembled immediately behind the foot elements or carriers may move with their squads. Where the terrain or the road net permits, carriers and the foot elements of the battalion may move in close parallel columns.

When carriers move with their squads in route column, no personnel (except antitank and chauffeurs) ride the carriers; platoons are usually distributed throughout the battalion in order to decrease vulnerability to air attack. When carriers are separated from their units, one gunner rides the carrier prepared to operate the machine gun. Each platoon transport corporal is in charge of the carriers of his unit and conducts the antiaircraft fires of the carrier guns.

d. Foot and motor elements must be united not later than development for approach march.

■ 333. DEVELOPMENT.—*a.* The company develops for approach march in accordance with the situation and the development order of the battalion commander, who prescribes the general dispositions of the battalion, the initial location of the company, any detachments for special mission, and the assembly areas, positions in readiness, or other march objectives on which the advance is to be directed.

(1) The place of the company in the battalion dispositions varies widely with the situation. The most usual place is as the rear element of the battalion. In a covered approach, where the battalion is to relieve or pass through covering troops, the company may, however, precede the leading rifle units with a view to the relief of the heavy weapons of the covering troops and the prompt establishment of an initial base of fire prior to the arrival of the rifle companies.

(2) On development of the battalion, the battalion commander usually directs the detachment of the antitank platoon for missions under his immediate direction. Where the passage of a defile is in prospect, the detachment of a machine-gun platoon for the antiaircraft protection of the battalion may be necessary.

b. The development order of the company commander is usually issued in fragmentary form. His instructions cover—

(1) Information relative to the enemy and friendly troops not already known to platoon leaders and pertinent to their missions.

(2) Initial objective of the battalion and the company.

(3) Distribution and initial location of platoons; detachments in accordance with battalion orders.

(4) Points where carriers join the platoon (usually the initial platoon locations).

(5) Base of the movement.

(6) Method of movement—whether transport will move assembled under company direction or carriers will join their platoons; whether in the latter case carriers will move with the foot elements or follow them by bounds; whether movement is to commence at a certain hour or on signal or order; whether readiness for immediate action throughout the movement is required.

■ 334. APPROACH MARCH.—*a.* It is usually of first importance to direct platoons to their initial locations and assemble platoon leaders at an observation point at which they can receive instructions and observe the terrain of the initial advance. The company commander regulates the advance of the company by the assignment of successive objectives.

b. The terrain and the situation determine the method of movement of the company transport. Where covered routes are available it will often be advantageous to move the carriers assembled under company control. The carriers can often be advanced to points much closer to the rifle companies by this method. The situation and the terrain must, however, favor the movement of the foot elements of the company without the immediate protection of antiaircraft weapons.

(1) In open country affording no covered routes of advance, the carriers are usually distributed to their platoons. Where the terrain permits rapid movement of the carriers, they follow the foot elements by bounds; otherwise they move with them. Where a high state of readiness for action is required, machine-gun platoons advance by section echelons and by bounds.

(2) In covered approach of the battalion, the situation does not call for prompt readiness for action, except for antitank defense, against hostile ground elements. The distribution and movement of the company can, therefore, be regulated solely with a view to facilitating movement restricting losses from air and tank attack and artillery fire to a minimum, and as far as practicable, concealing the movement of troops from hostile ground and air observation. Advantage can

generally best be taken of covered routes of advance by a flexible distribution in depth (successive platoons).

(3) In uncovered approach of the battalion, readiness for action against hostile ground elements throughout the depth of the battalion and protection against flank attack may be required. In such case distribution of the machine guns over the entire width of the battalion zone is generally necessary.

(4) The mortar platoons are disposed so as best to facilitate movement and reduce exposure to hostile observation and fire. In accordance with the situation and the terrain, they move by covered routes to the objective designated by the company commander or advance abreast of or follow the machine-gun platoons.

■ 335. RECONNAISSANCE DURING APPROACH MARCH.—*a.* When the company develops from route column, the reconnaissance officer, with the reconnaissance details, joins the battalion command group and remains with it until the company commander joins the battalion commander to receive orders.

b. The reconnaissance officer executes such detailed reconnaissance as may be desired by the battalion commander. His reconnaissances bear especially on the location of stream crossings and obstacles to motor movement, necessary detours, and the employment of mortars and machine guns under any plan of action contemplated by the battalion commander. He promptly transmits important items of information to the company commander by messenger. When action appears imminent, the company commander, on summons of the battalion commander, instructs the second-in-command to move the company to its march objective or to a position in readiness and joins the battalion commander. Following instructions of the battalion commander indicating the battalion objective and the general employment area of machine guns and mortars, he conducts reconnaissance, with the assistance of the reconnaissance details, for the organization of a base of fire, the determination of target areas, the distribution of his platoons to position areas, and the location of an observation post. He reconnoiters the general location of off-carrier positions and sends guides to conduct the platoons thereto. Throughout these operations, the reconnaissance officer is prepared to advise the company commander as to positions, routes

thereto, and target areas. His timely execution of reconnaissance prior to the arrival of the company commander may permit the platoons to move into off-carrier positions and firing position areas without delay. He is especially charged with the execution of the company commander's orders in respect to the distribution of target areas, the computation of firing data, the selection and installation of the observation post, and the establishment of signal communications within the company.

c. After reconnaissance of their position areas by company and platoon leaders, the latter select off-carrier positions so that as nearly as practicable—

(1) Carriers can be readily moved forward to join platoons for subsequent movement.

(2) Platoon carrying parties have the shortest haul for the transport of ammunition from carriers to gun positions.

(3) Favorable routes to the rear are available for return of carriers to the battalion ammunition point for resupply of ammunition.

(4) The location is covered from hostile observation and fire.

■ 336. ATTACK.—a. *Mission of company.*—The company commander receives his mission in the battalion attack order. The order covers organization of the initial battalion base of fire and the battalion plan of supporting and protective fires. Instructions to the company commander indicate the position areas, target areas, order of fires, conditions for opening fire, and arrangements for displacement to successive bases of fire in support of the attack. These instructions are usually given in fragmentary form. Missions are frequently of short duration and must be renewed from time to time.

b. *Location of fire base.*—(1) As a general rule, the battalion base of fire is located as close as practicable to the first mask in rear of the line of departure. Fire control from a distant observation post and dependence on a long line of communications deprive the fire of infantry supporting weapons of the flexibility necessary to meet unexpected situations and the changing conditions of battle.

(2) Where masked positions are occupied, the requirements imposed by mask clearance of fire on the machine-gun tar-

gets will often be the determining factor in fixing the location of the firing position. Where, however, the occupation of masked positions would result in the removal of the machine guns to an excessive distance from the rifle companies, open positions should be occupied.

(3) The location of the battalion base of fire varies with the terrain and the situation. As a general rule, its distance from the departure positions of the rifle companies should not exceed 500 yards. Machine guns in masked positions should be prepared to take open positions on the shortest possible notice. Likewise alternate masked positions may be selected when open primary positions are occupied.

(4) Where the control of mortar fire is dependent upon observation in the assembly areas of the leading companies, it is generally better to place the mortars at the disposition of rifle company commanders than to rely on distant observation for the conduct of fire.

c. Distribution of positions and missions.—(1) Where positions have already been reconnoitered, the reconnaissance of the company commander for the distribution of weapons on the battalion base of fire is usually brief and is primarily made with a view to—

(a) Determining whether the fire of weapons platoons will be controlled as a unit or by distribution of fire missions to platoons.

(b) Checking and delimiting with greater precision, where necessary, platoon positions and target areas or sectors of fire, arrangements for observation, control, and preparation of fires.

(c) Regulating the disposition of carriers so as best to insure continuity of ammunition supply.

(d) Locating a company observation post.

(2) Unit fire control of the machine-gun platoons under company direction greatly increases fire effect, but requires a clear field of view over the entire battalion zone from a central observation post and reliable signal communications from the company observation post to the platoons. These conditions will not often obtain, and the company commander will more frequently direct the machine-gun fires by the assignment of missions to the platoons. Where unit control

is retained by the company commander, he takes as secondary mission target areas in the zones of adjacent battalions. In the distribution of target areas to the machine guns and the mortars, the company commander considers that—

(a) Machine guns should generally be assigned to long-range targets not defiladed against flat-trajectory fire. In overhead fires, the machine-gun targets will ordinarily lie in a zone from 400 to 1,500 yards in front of the attacking echelon. The limiting ranges will vary with the nature of the terrain.

(b) Mortars should generally be assigned close and mid-range targets defiladed against flat-trajectory fire, especially those too close to the attacking echelon to be dealt with by artillery, and isolated point targets on which mortar fire can be more rapidly adjusted. The mortar targets ordinarily lie in a zone from 200 to 600 yards in front of the attacking echelon.

(c) Mortars should not be assigned targets vulnerable to flat-trajectory fire.

(d) Close and midrange flanking fires pertain to the rifle company light machine guns and are only exceptionally assigned to heavy machine-gun units.

d. Machine-gun fires.—Machine-gun fires from the initial base of fire are as follows:

(1) *Supporting fires.*—(a) These include fires engaging hostile elements opposing the initial advance of the rifle troops or tanks. Fires in support of rifle units are generally overhead fires against hostile elements in the battalion zone or long-range fires directed against hostile elements in adjacent zones. Supporting fires sometimes include short machine-gun preparations fired prior to debouchment of rifle units. Fires in support of rifle units are frequently masked shortly after the debouchment. The effectiveness of these fires depends principally upon adequate observation of the targets and the advancing rifle elements. The company commander's orders for supporting fires include instruction for ceasing or lifting fires (on signal from observation posts or from the reconnaissance detail or on the initiative of platoon leaders based on observation of advance of riflemen).

(b) Fires in support of initial tank advances are not restricted by a safety limit. They are directed principally against known antitank gun emplacements or against anti-tank guns that disclose their positions by flashes or muzzle blast during the tank advance. They may extend from the line of departure to a distance of 1,500 yards in advance thereof.

(2) *Long-range protective fires.*—(a) These include fires on hostile elements in rear of the leading hostile troops which endanger the attacking echelon. They may include reverse slope areas. Protective missions usually become the principal mission of machine guns when the advance of the attacking echelon masks supporting fires. (See fig. 16.)

(b) Protective fires against enemy rearward elements are directed especially against heavy weapons, unarmored vehicles, known or suspected locations of enemy reserves, and counter-attacking elements. Early fixing of safety limits to control such fires when the attacking echelon has become closely engaged is essential. Missions are prearranged by directing platoons to prepare data to fire on numbered key points in enemy rear areas visible from platoon observation posts or by the assignment of fire sectors. Success of fires depends on effective observation. Registration on key points prior to attack is resorted to only when directed by the battalion commander.

(3) *Flank protective fires.*—These are opened on observation of enemy action, on signal, or on call from rifle companies. Information or observation of the exact location of rifle elements in assigned fire sectors is imperative. Provision is made for flank protective fires whenever the advance of the battalion creates an exposed flank. (See fig. 19). Flank protection is the special duty of the platoon holding positions on the exposed flank.

(4) *Antiaircraft fires.*—When not required for the execution of ground missions, the guns of one section in each platoon take position for antiaircraft fire. They are constantly prepared to go into positions for ground fire. The ground situation has priority over all antiaircraft missions. Machine guns do not allow themselves to be diverted from ground missions by aerial attack.

■ 337. **DISPLACEMENT.**—*a.* The battalion commander anticipates displacement whenever practicable by the early designation of a new base of fire, or when no new base of fire is to be designated, by prescribing the general areas to be occupied by machine-gun and mortar units to support rifle units, protect the flanks, or deliver other protective fires as the attack progresses. (See fig. 18.)

b. Displacement is commenced on order of the company commander early enough to insure continuous protection of rifle companies and timely occupation of positions on the next base of fire. Platoon leaders notify the company commander when they can no longer conduct fire missions due to lack of observation of targets; when safety provisions for rifle troops mask their fire; or when displacement is necessary to occupy gun positions for the protection of an exposed flank. Such reports include recommendation from the platoon leader as to new positions from which the assigned missions can be carried out.

c. The displacement of the machine guns is effected as a unit, by platoon echelon, or by section echelon in each platoon. Echeloned displacement usually permits continuity of fire; the echelon remaining in place takes over the fire missions of the moving echelon. Displacement by platoon echelons favors prompt reestablishment of fire control and the unified action of the platoons. However, considerations of flank protection may make displacement by section echelons necessary.

d. Mortars may be displaced independently or in coordination with the machine guns. (See fig. 17.) When observation over the zone of peculiar interest to mortar fire becomes deficient, a displacement should be initiated regardless of the situation of the machine guns. A coordinated displacement, however, favors the establishment of a new base of fire and the concentration and coordination of machine-gun and mortar fire. The mortar platoon displaces as a unit or by squad echelons (par. 312).

e. The prompt establishment of a new base of fire is facilitated by the early dispatch of reconnaissance details to the new position area. They locate target areas, select gun positions and observation posts, set up instruments, and

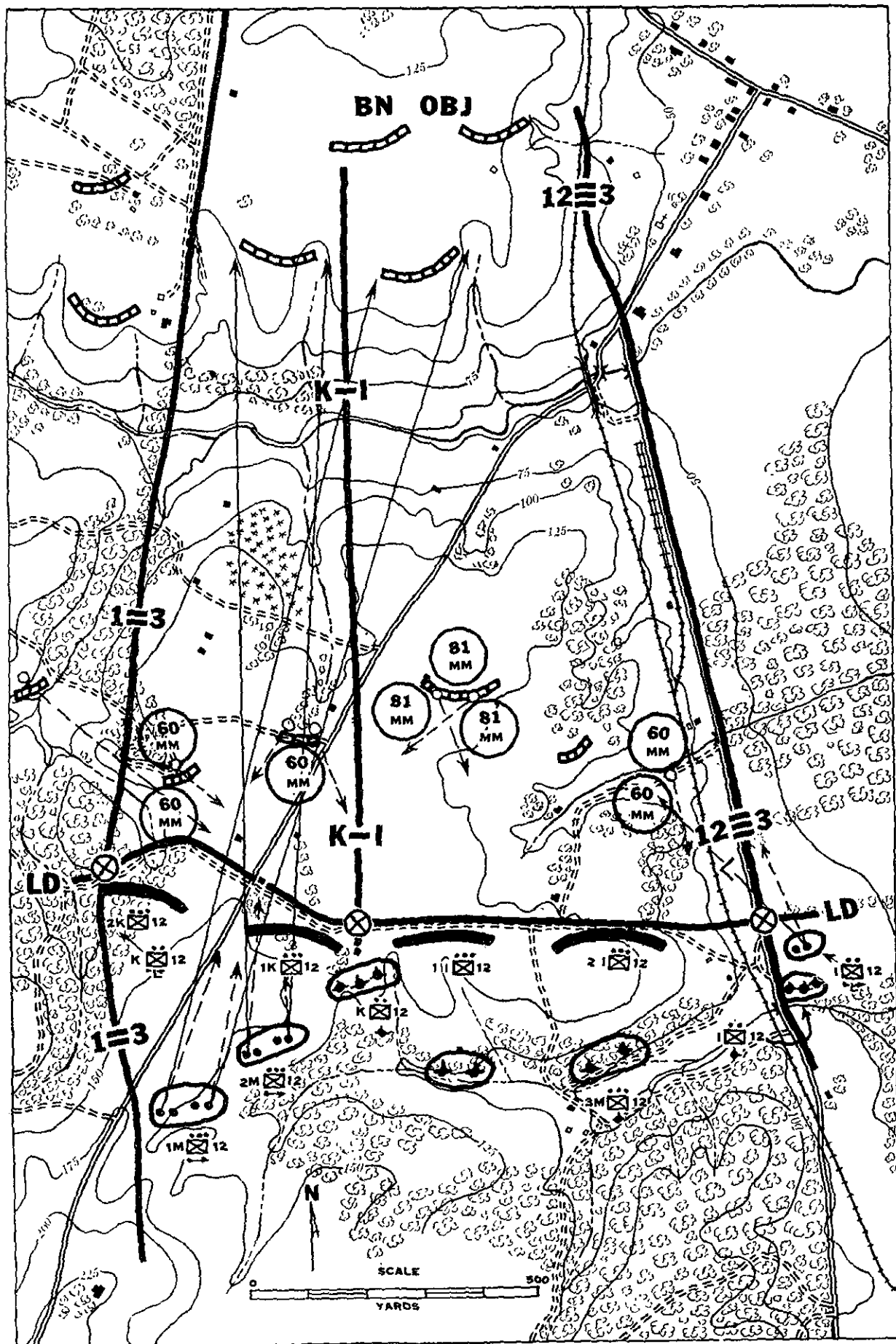


FIGURE 16.

NOTE (fig. 16).—Base of fire established by battalion and each rifle company of attacking echelon.—a. The company commander of Company I has placed his light machine guns on his right flank to fire against enemy isolated resistance points located in his zone of advance. The 60-mm mortars are emplaced to fire against enemy machine guns emplaced in a deflated position near the railroad.

b. The company commander of Company K has placed his mortars on an initial base of fire to engage enemy machine-gun nests in his zone. He holds his light machine-gun section in readiness, assigning it a mission to move through the woods to the wooded knoll on his left flank and initially engage enemy automatic weapons located so as to cover Company K's zone with cross fire. He has assigned a secondary mission from this flank position for the guns to engage targets in 1st Battalion zone. He has notified the commander of the right company of the 1st Battalion of the proposed movement of his machine guns and has been assured of his cooperation in the maneuver.

c. The company commander of Company M has received a mission from the battalion commander to organize the battalion base of fire in support of the attack, engaging the enemy main position with the protective machine-gun fire, and the key point of the enemy first line with the mortars. He has assigned machine-gun platoons target areas as indicated to fire until masked.

d. The 81-mm mortars will be able to fire only a short time on the initial target area. The battalion commander desires to take advantage of the excellent observation of the movement of the rifle troops against the forward enemy position to utilize the mortar fire to neutralize the key point of the enemy forward dispositions.

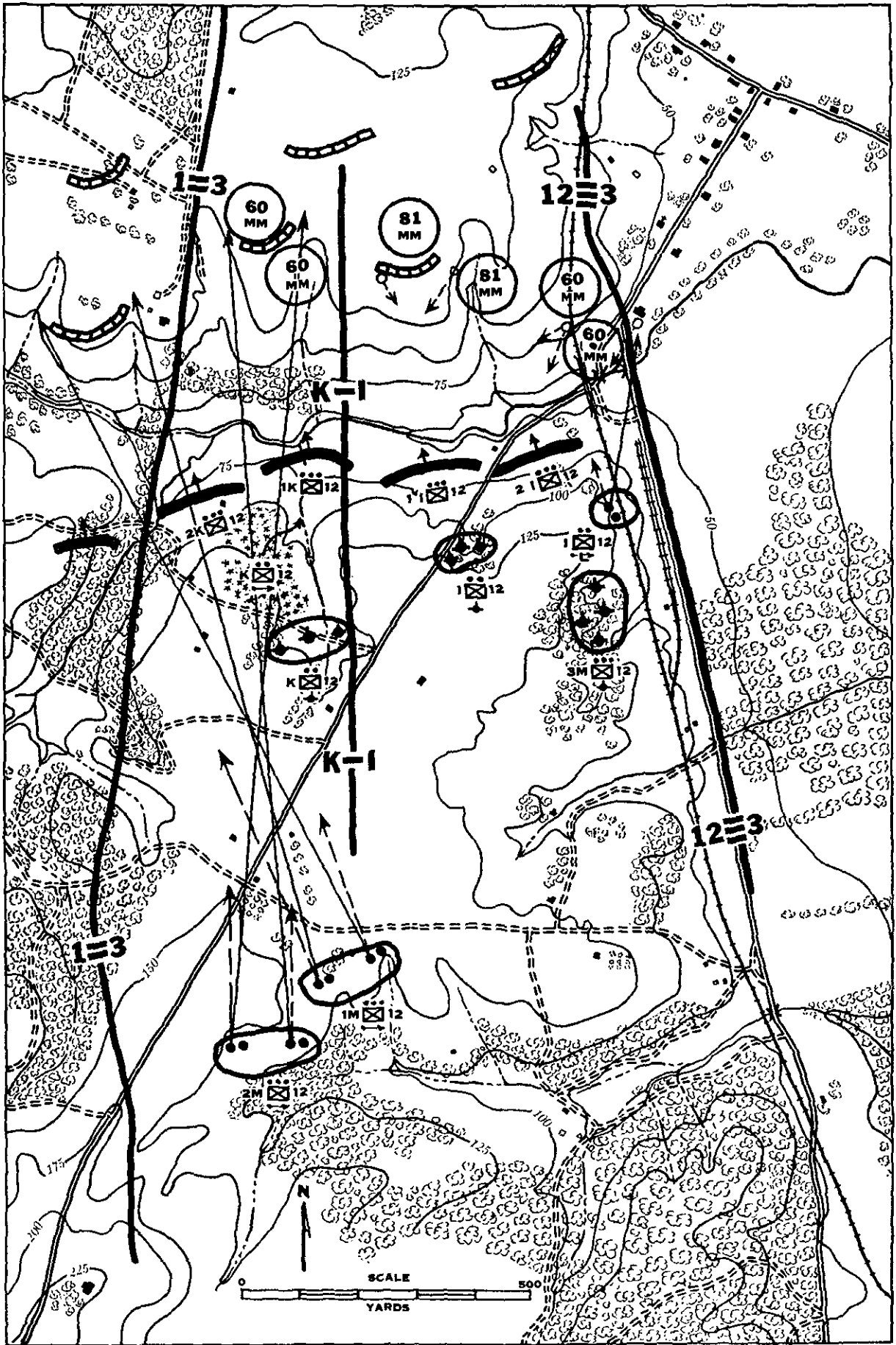


FIGURE 17.

NOTE (fig. 17).—Use of supporting weapons during progress of attack.—The rifle company weapons platoons are supporting the advance of the rifle elements. In the zone of Company K the light machine guns are advancing behind the rifle platoons and are not in action. The 60-mm mortars, directly controlled by the company commander, are engaging enemy positions on the company objective. In the zone of Company I the light machine guns are engaging a hostile machine gun which has opened cross-fire against the right flank of the company; the 60-mm mortars are firing on machine-gun nests near the railroad embankment. The battalion commander has shifted the fire of one machine-gun platoon into the 1st Battalion zone to neutralize enemy fire against the left flank of Company K. During this fire the reconnaissance officer observes the movements of advance rifle elements of Company K and the right flank company of the 1st Battalion. A message has been sent to commanding officer 1st Battalion informing him of the fire. The 81-mm mortars have displaced forward and are in close support of the attacking echelon.

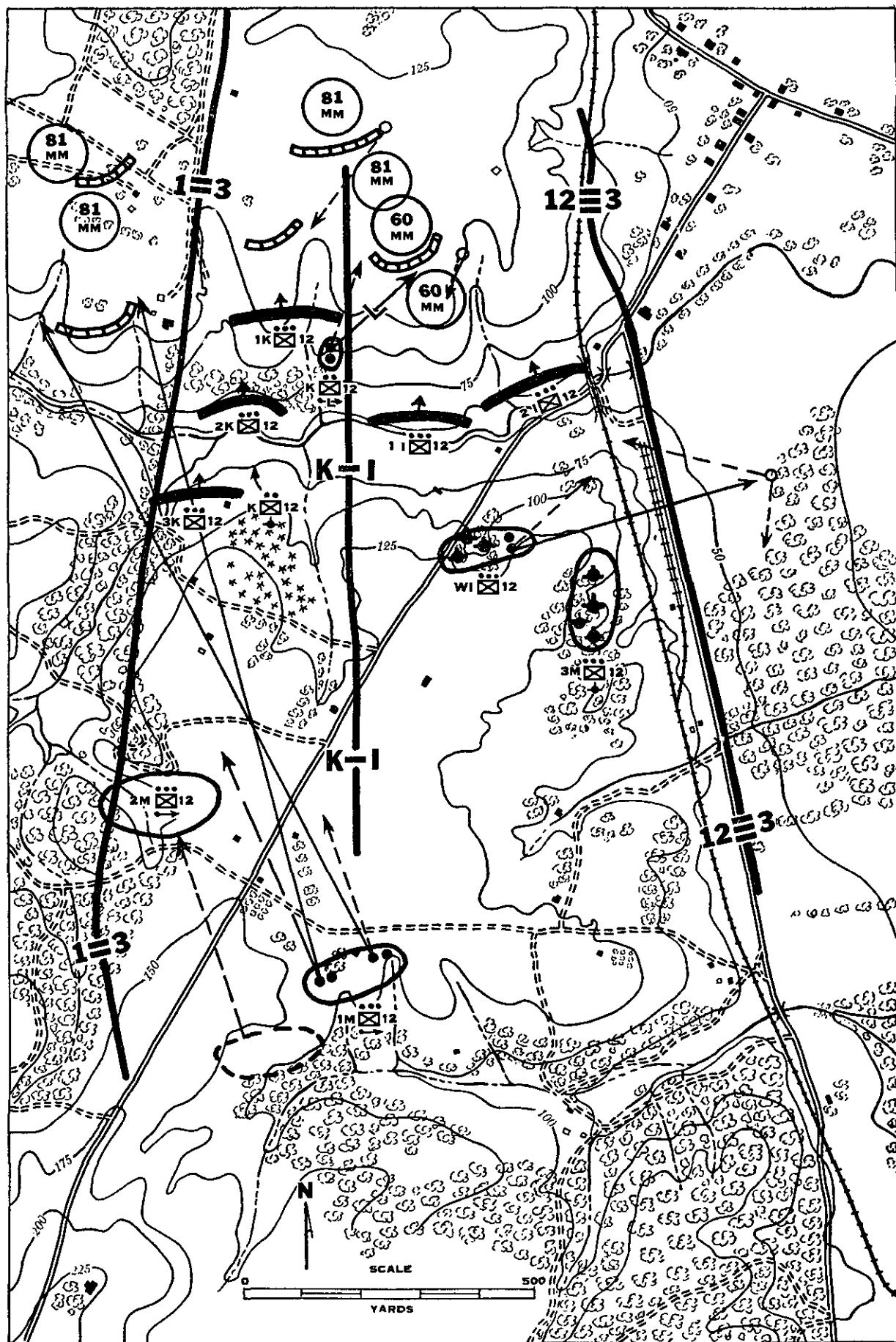


FIGURE 18.

NOTE (fig. 18).—Use of supporting weapons during continued progress of attack.—The advance rifle units are crossing stream line. The company commander Company I is still employing his light machine guns to meet hostile flanking fire machine guns. His mortars are engaging the enemy position. The battalion commander has directed one of his 81-mm mortars to lift fire to the enemy rearward emplacements. One platoon of heavy machine guns remains on the initial base of fire to continue the fire on the enemy position in the 1st Battalion zone. The other heavy machine-gun platoon is displacing forward toward the next base of fire to be established on the objective. It has been directed to halt under cover of the intermediate crest prepared to occupy emergency firing positions to protect the left flank of the battalion.

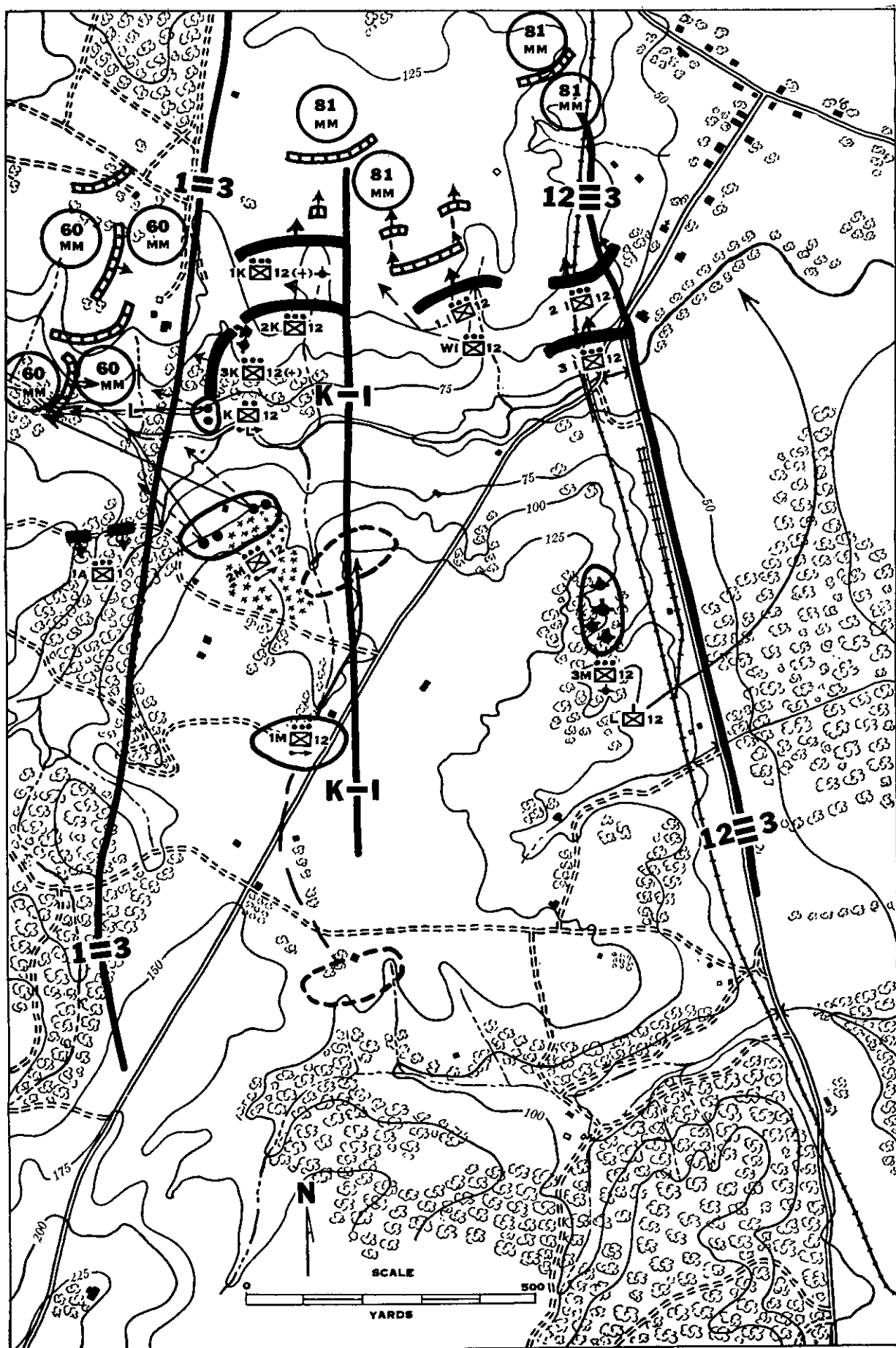


FIGURE 19.

NOTE (fig. 19).—Use of supporting weapons during assault.—a. Rifle troops have launched the assault. On the right Company I is advancing rapidly. The company commander has moved his weapons platoon forward to a position in readiness from where it can quickly move to positions on the objective to support a continuation of the attack through the depth of the hostile position.

b. Company K has captured the enemy first line but is threatened with a counterattack on its left where the enemy has succeeded in stopping the advance of the 1st Battalion. Company commander Company K has thrown his light machine-gun section into action on his extreme left to engage the enemy counterattacking troops. He has released his mortars to platoon leaders, attaching one squad to the 1st Platoon whose mission is to hold the captured position, and two squads to the 3d Platoon which has been thrown in to meet the enemy counterattack.

c. The battalion commander shifts the fire of the 81-mm mortars to support the successful advance of Company I, therefore to continue under battalion control in support of Company I's attack, lifting to rearward defense line of the enemy when the rifle elements mask their fire. He had previously moved his reserve company (L) toward the right flank with a view to extending the attack of Company I and seizing the objective.

d. Heavy machine guns have been ordered to meet the threat on the left flank by extending the flank protection in depth. The heavy machine-gun platoon which had already displaced forward to a position of readiness goes into action in an emergency position to protect the left flank, taking positions from which it enfilades the hostile counterattacking troops. The other heavy machine-gun platoon, already displacing forward toward the objective, is also ordered into position to block the counterattack by fire.

e. The action of supporting artillery and antitank weapons is not shown in these illustrations. Location and movement of rifle elements have been shown by block symbols which indicate only the approximate area occupied by the platoons during various stages of the attack.

obtain firing data for the weapons in their new positions. Gun sites are marked with stakes.

f. Reconnaissance details follow the attacking echelon under the command of the reconnaissance officer. They move from cover to cover as far as practicable by covered routes and occupy positions where they can observe the attacking echelon and communicate by visual signaling with the observation post of the heavy weapons company. The reconnaissance officer, when necessary, signals for the lifting or cessation of fires.

g. Company and platoon observation posts hold the advancing Infantry under constant observation, independent of the action of the reconnaissance officer, and in the proper case call for the cessation or lifting of fires.

■ 338. DEFENSE.—*a. Organization of fires.*—(1) Machine guns form the skeleton of the battle position (par. 101). The battalion defense order prescribes the missions and general disposition of heavy machine-gun units. It apportions the number of units to be emplaced in forward positions for fire in front of the main line of resistance; or in rear positions to fire long-range overhead fires and limit local penetration or envelopment by hostile attacking forces. Guns emplaced in the battle position are assigned positions and missions by section; fire sectors and final protective lines of the heavy machine guns are combined with the rifle company light machine guns (par. 280) so as to cover the front of the main line of resistance with continuous bands of fire. (See fig. 20.)

(2) Mortars are emplaced so as to cover dead spaces in the bands of machine-gun fire and bring fire on any defiladed spaces within midrange of the position.

b. Fire positions (see appendix I).—(1) In the defense, machine guns occupy—

Primary gun positions.

Alternate gun positions.

Supplementary gun positions.

(2) Supplementary positions for long-range fire by machine guns assigned to the main line of resistance are limited to locations which assure covered routes for return to positions on the main line of resistance in time to accomplish the principal fire missions from the primary positions; ordinarily reverse slope positions.

(3) Long-range machine-gun fires from positions in the main line of resistance result in premature disclosure of principal defensive dispositions and exposure to the annihilating fire of hostile artillery.

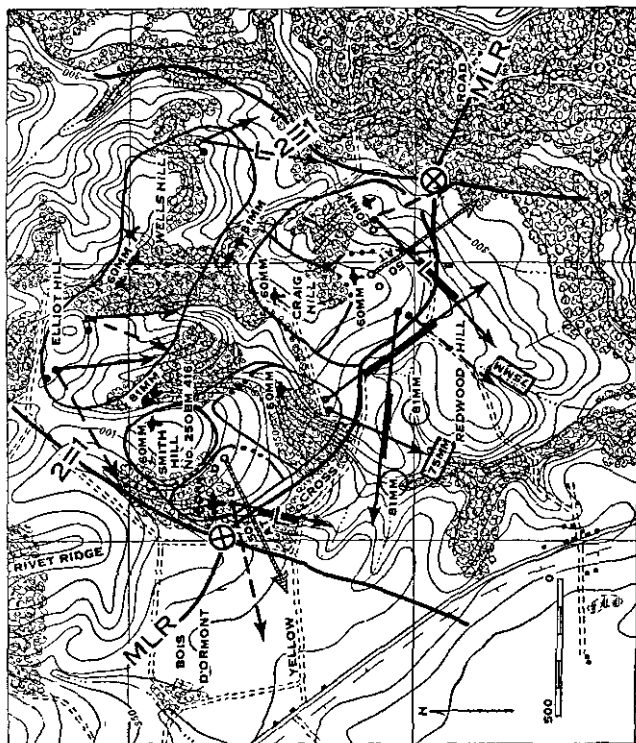


FIGURE 20.

NOTE (fig. 20).—*Battalion defense area.*—Locations and fires of all weapons of the battalion to include the light machine guns of rifle companies and of their 60-mm mortars are shown. The primary target areas for the 81-mm mortars and the normal barrages of the supporting artillery are also shown. Note that some of the 60-mm mortars are attached to front-line platoons and that the caliber .30 light machine guns are employed in the defense in the same manner as caliber .30 heavy machine guns located in the main line of resistance.

c. Distribution of machine guns.—(1) It is sometimes advisable to distribute the machine guns between positions in the main line of resistance and positions for long-range fire. One platoon may be assigned to each mission.

(2) Where the main line of resistance is on a reverse slope, it is often practicable to move all machine guns to the crest in front for long-range fire with a view to inflicting maximum losses on the enemy during his advance. Provision for timely withdrawal to primary positions must be made.

(3) When the main line lies upon a forward slope, one echelon of guns frequently occupies firing positions on the crest in rear for long-range fires. These guns also have the mission of stopping any hostile elements which succeed in breaking through the main line of resistance; they also function in antiaircraft defense. Where necessary, they occupy primary positions for covering the long-range fields of fire, and supplementary positions for the close-range missions. The long-range fires may be delivered from masked positions. Initially this echelon may be on the line of combat outposts if covered routes of withdrawal are available.

d. Reconnaissance and orders.—(1) Reconnaissance of the company commander covers—

(a) The foreground of the position—Terrain affording covered routes of approach; terrain features covering possible final assembly positions for hostile forces; firing positions for enemy heavy infantry weapons; defiladed areas.

(b) The interior of our own position—Location of observation posts covering entire foreground; firing positions for execution of final protective and long-range machine-gun and mortar fires; limits of supporting machine-gun and mortar fires from rearward positions (usually not nearer than 400 yards, in the case of the machine guns, and 200 yards, in the case of the mortars, to the main line of resistance); positions for carriers; facilities for the movement of machine guns into primary positions from supplementary positions; gaps in bands of machine-gun fire which must be covered by rifle, automatic rifle, or mortar fire.

(2) The order of the company commander covers—

(a) Course of the main line of resistance.

(b) Primary firing positions for sections (or platoons where these form separate echelons); alternate and supplementary positions; firing positions of mortars.

(c) Machine-gun sectors of fire and mortar targets in front of the main line of resistance; target areas for long-range machine-gun fires; final protective fires; concentrations and target priorities.

(d) Conditions for opening fire in each position; measures for antiaircraft defense.

(e) Signals for movement from supplementary positions.

(f) Priority of construction of emplacements; measures for concealment; communicating trenches; camouflage.

(g) Communications (telephone and light signals).

(h) Ammunition supply.

e. Fire plan.—The company commander submits recommendations to the battalion commander for the establishment of the battalion fire plan. He indicates the sectors of fire of the machine guns, the targets or target areas of the mortars, the firing positions of each weapon, and the dead spaces in the bands of machine-gun fire which cannot be covered by the mortars and should be covered by artillery or rifle companies. His report is often made in the form of a sketch or overlay.

■ 339. **ANTIAIRCRAFT MISSIONS.**—The heavy machine-gun platoons are habitually employed on antiaircraft missions in the following situations:

a. In bivouac.—The company commander emplaces machine guns to cover the bivouac area of the battalion, employing all guns of the company. Reliefs are arranged at the guns and constant readiness for action maintained. The commander of the troops establishes an antiaircraft warning system, and the company commander informs gun commanders of the warning signals. Protection of machine guns on antiaircraft defense missions is, where necessary, provided by rifle units of the outpost or other security elements.

b. On the march and in approach.—The principal antiaircraft weapons of the battalion are the rifles and automatic rifles. Carrier machine guns provide antiaircraft protection for the heavy weapons company in approach.

c. During an attack.—Machine-gun platoons automatically provide antiaircraft defense of elements on the base of fire and in displacements.

d. In defensive situations.—Machine guns covering the main line of resistance are not employed on antiaircraft missions. Emplacements are so constructed and camouflaged as to make hostile air attack unprofitable and active defense measures unnecessary. Machine guns assigned to long-range missions and removed from the zone of the main line of resistance may be assigned antiaircraft missions. Reserve battalions usually employ their machine guns to protect their own location both in attack and in defense. Dispositions are in general the same as in bivouac.

e. Antiaircraft protection of company transport.—This protection is furnished by guns on the mounts of the carriers. Guns are manned by the drivers when carriers, halted in exposed localities, are actually attacked by hostile planes. Where exposed movement of carriers subjects them to hostile air attack, the company commander may direct that one gunner from each squad remain with the carrier to operate the antiaircraft gun. Usually carriers depend on rapid and individual movement and concealed or camouflaged locations to render hostile air attack unprofitable.

■ 340. DELAYING ACTION.—*a.* Machine-gun and mortar units are usually attached to rifle companies for the execution of delaying missions (par. 281). In open terrain, machine guns are the principal elements in delaying action against pursuit by foot Infantry.

b. Positions affording long-range fields of fire for the machine guns and covered lines of withdrawal are essential. Mortars execute long-range fire against defiles and against ravines affording covered lines of approach to pursuing forces. Usually machine guns engage targets from positions well in rear of rifle companies, leaving close and midrange fires to the light machine-gun and other rifle company elements. To protect the withdrawal it may, however, be necessary for machine-gun elements to hold their positions to the last man. Machine guns select supplementary emplacements to cover the close-range field of fire, seeking mutual support of machine-gun sections by cross fires.

c. Early reconnaissance of successive lines of resistance for selection of firing and observation positions and routes of withdrawal thereto are initiated. Carriers are utilized wherever practicable for movement of weapons.

■ 341. AMMUNITION SUPPLY DURING COMBAT.—*a. Movement of weapons carriers.*—(1) The company commander gives the necessary instructions for the control of the company transport during combat. Wherever practicable, platoon leaders retain control over the platoon carriers. When the platoon effects a displacement during action, the transport corporal, without command, displaces the carriers to the new location as soon as permitted by the terrain and the situation. As soon as required, he takes steps to release one carrier of each section for ammunition replenishment, transferring reserve and special equipment to the remaining carrier. He directs the movement of the empty carriers to the rear as instructed by the battalion transport officer. He maintains constant liaison with the platoon leader.

(2) When the terrain or the situation requires the carrier to be stationed so far to the rear as to be beyond the control of platoon leaders of the heavy weapons company the carriers operate under the immediate control of the battalion transport officer (par. 343a(2)(b)). He conducts constant reconnaissance of the situation in the forward area and of covered routes for the movement of the carriers to their units. The battalion transport officer returns the carriers to the control of heavy weapons platoon leaders whenever the situation and the terrain permit.

(3) In defensive situations the carriers are usually assembled in covered positions under battalion or regimental control. In all cases, the battalion transport officer is charged with the supervision of the movement of carriers from the off-carrier positions to the rear. He informs the transport sergeant or each transport corporal as to the route the carriers are to follow in moving to the rear. When the carriers are to be assembled under battalion control, the location of the carrier assembly position is prescribed.

b. Ammunition point.—(1) The battalion ammunition point is located as close as practicable to the positions of the carriers. It operates under the supervision of the battalion

supply officer. When the carriers are assembled, the battalion ammunition point usually is at the carrier position.

(2) Calls for ammunition supply are sent directly to the transport officer by all platoons. The transport officer routes the carriers to the battalion ammunition point, where according to circumstances they are refilled or routed to the regimental DP by the battalion supply officer. When it is impracticable to forward ammunition by motor carriers to positions in the close vicinity of platoons, the battalion supply officer utilizes the personnel of the battalion ammunition section to forward ammunition.

(3) The transport officer maintains liaison with platoon leaders and keeps himself informed as to the situation and all contemplated movements.

CHAPTER 4

RIFLE BATTALION

SECTION I

ORGANIZATION

	Paragraphs
SECTION I. Organization.....	342-343
II. Marches and engagement.....	344-351
III. Attack.....	352-357
IV. Defense.....	358-366

■ 342. COMPOSITION.—*a.* The infantry battalion, rifle, consists of a headquarters and headquarters detachment; three rifle companies (ch. 2, sec. VII); and a heavy weapons company (ch. 3).

b. For operations, the following units are habitually attached to the headquarters and headquarters detachment: one section, medical detachment; one section, communication platoon of regimental headquarters company. 37-mm antitank guns may be attached to the battalion.

■ 343. BATTALION HEADQUARTERS AND HEADQUARTERS DETACHMENT.—*a. Headquarters.*—(1) *Composition.*—The headquarters comprises a lieutenant colonel (battalion commander) and his staff. This staff includes one major or captain, executive and operations officer; one first lieutenant, adjutant, intelligence officer, and detachment commander; and one first lieutenant, battalion transport officer. In addition, the communications officer (from headquarters company), the supply officer (from service company), and the surgeon, besides performing the duties of commanders of their respective units, function as members of the battalion staff. For organization and general duties of staffs see FM 101-5.

(2) *Functions of staff officers.*—The executive and operations officer acts as second-in-command of the battalion and as principal assistant of the battalion commander on matters relating to tactical operations.

(*a*) The adjutant and intelligence officer is charged with the establishment and operation of the battalion command

post and the observation post and other details connected with intelligence. He represents the battalion commander in his absence and that of the executive officer when communication cannot be established with them.

(b) The battalion transport officer is the commander of the battalion headquarters detachment. He exercises staff supervision over the tactical operation of motor vehicles of the battalion. In march or approach situations, when motor elements of the battalion are grouped, he commands the tactical groupment (weapons carriers and other vehicles necessary for combat). The battalion supply officer commands the supply vehicles (kitchen and baggage trucks if present with the battalion). In the process of ammunition supply the battalion transport officer controls company weapons carriers from the time they leave the companies until they pass to the control of the battalion supply officer at the battalion ammunition point, and on their return until they revert to the control of their respective commanders (par. 341). He controls the pioneer and ammunition section for pioneer operations and makes available to the battalion supply officer the personnel necessary for the operation of the battalion supply point.

(c) The battalion surgeon commands the attached medical section and acts as adviser to the battalion commander on medical matters. He accompanies the battalion commander while the plan of attack is being formulated and, if practicable, is present when the attack order is issued.

(d) The battalion communications officer is a member of the communication platoon of the regimental headquarters company. After his section joins the battalion, he is responsible to the battalion commander for the operation of the battalion communication system.

(e) The battalion supply officer is a member of the transportation platoon of the service company. After his section joins the battalion, he is responsible to the battalion commander for the functioning of the battalion supply system, with special reference to ammunition, rations, and gasoline and oil. He bases his supply plan on the battalion commander's instructions and the regimental supply plan.

b. Headquarters detachment.—(1) *Composition and armament.*—See appendix II.

(2) *Duties.*—(a) *Message center section.*—The message center section operates the battalion message center, and with the attached section from the regimental communication platoon is concerned with the communication system of the battalion.

(b) *Intelligence section.*—The intelligence section is employed under the battalion intelligence officer to collect, record, coordinate, and disseminate information regarding the enemy. One or more men of the section are attached as required to patrols and to leading companies in the approach march and in attack. This section also mans the battalion observation post.

(c) *Ammunition and pioneer section.*

1. The ammunition and pioneer section is concerned with the ammunition supply of the battalion and the accomplishment of simple field engineering tasks not requiring the technical training and special equipment of engineer troops for pioneer tasks. It operates under the direction of the battalion transport officer.
2. In the organization of the attack, the battalion transport officer makes available at the initial battalion ammunition point such portion of the section as is necessary for ammunition supply. During combat it operates the battalion ammunition service as directed by the battalion supply officer, loads and unloads ammunition vehicles, and when the situation does not permit the transportation by motor carrier beyond the battalion ammunition point, it manhandles the ammunition forward to the troops.
3. During the march and development for combat, the section is usually employed in the execution of pioneer missions. Its pioneer duties include minor road repair, bridging of small streams and ditches, temporary repair of small bridges and culverts, making ravines and ditches passable for motor vehicles, maintenance of crossings at fords, elimination of obstructions and obstacles to motor vehicles (including mines and traps), marking

routes and localities, execution of minor demolitions, and the execution of such field expedients as are necessary for the road and cross-country displacement of the battalion vehicles. On the march, when the battalion is making an uncovered movement and engineers are not attached, the section may be divided into two echelons. The forward echelon is employed near the head of the battalion for minor road maintenance and repairs and for removing obstacles and obstructions. The rear echelon accompanies the battalion trains and assists their movement. Details covering training in the performance of simple field engineering tasks and field expedients are found in FM 25-10 and FM 5-15.

4. The section is equipped with two trucks with winches carrying special equipment and supplies for the execution of its missions. The special equipment includes pioneer tools, demolition equipment, and channel beams for ditch and obstacle crossings.

c. Attached units.—(1) *Section, medical detachment.*—This section, under the battalion surgeon, comprises an aid-station squad which operates the battalion aid station; a company aid squad which furnishes aid men to the companies of the battalion; and a litter-bearer squad.

(2) *Section, communication platoon.*—This section, when attached to the battalion headquarters detachment, operates the radio, wire, and visual communication of the battalion. The composition of the section is shown in appendix II.

SECTION II

MARCHES AND ENGAGEMENT

■ 344. *MARCHES.*—*a. General.*—The general procedure governing marches is covered in FM 100-5.

b. Covered movement.—Regimental orders usually prescribe whether the foot and motor elements will march assembled or in separate echelons. The commander of the heavy weapons company or the battalion transport officer

commands the motor echelon. The battalion commander ordinarily moves with and commands the foot echelon. Provision for the reunion of the foot and motor echelon at the end of a day's movement is usually necessary in all movements in the combat zone. The heavy weapons company is ordinarily near the head of the column. Antitank weapons are distributed throughout the column. Elements of other arms are not ordinarily attached.

c. Uncovered movement.—(1) The battalion makes an uncovered advance when moving as the leading battalion of an advance guard, rear battalion of a rear guard, or as a flank detachment or leading element thereof. In uncovered advance, the battalion ordinarily details a rifle company to cover its movement. For conduct of a rifle company in uncovered advance see paragraph 275*c* and *d*.

(2) The order of march of an uncovered battalion is ordinarily as follows:

- 1 rifle company;
- Distance: 600–1,000 yards;
- 1 rifle company;
- 1 antitank platoon;
- 1 communications section;
- 1 rifle company;
- 1 heavy weapons company (less detachments);
- Attached antitank guns;
- Distance: variable, not in excess of 1,000 yards;
- Attached antiaircraft and field artillery, engineers, and tanks;
- Other attached combat troops;
- Distance: not in excess of 1,000 yards;
- Medical detachment;
- Battalion trains (where not detached).

(a) Where danger of attack from the flank or rear exists, rifle and antitank elements may be distributed throughout the column.

(b) The order of march of rifle companies is changed from day to day; the leading unit on any day forms at the tail of the column on the following day.

(3) Separate movement of foot troops and tactical transportation is not permissible when the situation requires a high

degree of readiness for action; the weapons carriers must be able to rejoin foot troops promptly. Vehicles not assigned special antiaircraft or antitank missions are grouped behind the foot troops of the battalion when marching on a road. When foot troops march on the sides of the road or off the road and parallel to it, the vehicles advance at normal speed by bounds. So far as practicable, bounds are made by successive movement from one covered area to another; the frequency of bounds is such as to keep the vehicles generally abreast of their battalions. In open country lacking in cover, the vehicles generally halt when the foremost motor is abreast of the leading foot elements of the battalion. The leading vehicles resume the advance when passed by a designated element of the foot column. When defiles are encountered, vehicles follow the foot troops, moving at slow speed.

(4) Attached antiaircraft and field artillery, engineers, tanks, the battalion train, and the medical detachment usually follow the battalion by bounds.

d. Antiaircraft security.—(1) During daylight marches within the effective radius of hostile aviation, the battalion commander takes the following measures for protection against air attack:

(a) Selects the route having fewest defiles and long straight stretches. Sections of road bordered by marshes, stout fences, hedges, dense woods, or other obstacles to rapid deployment should be treated as defiles.

(b) Details antiaircraft lookouts and prescribes an alarm signal (par. 208).

(c) Employs the caliber .30 machine guns of the battalion for antiaircraft protection of the passage of defiles.

(2) When the threat of air attack is serious, it may be desirable to keep tactical transport off the road as much as possible. In this case, the carriers are moved in rear of the column by rapid bounds from one covered area off the road to another.

e. Antitank security.—In uncovered advance the battalion commander takes the following antitank security measures:

(1) Selects the route least favorable for tank attack, and successive battalion objectives that afford antitank protection, such as antitank obstacles.

(2) Directs the detail of antitank lookouts and the establishment of an alarm system (par. 209).

(3) Distributes the battalion antitank weapons and any attached antitank guns throughout the column so as best to meet the probable direction of mechanized attack. When the enemy is distant, or when marching at night, the principal threat is on roads, and road blocks find especial application. Roads leading from the front are especially guarded.

f. Halts.—(1) As far as permitted by the regimental march order and other march conditions, the battalion commander halts the column at such places along the route as will afford the maximum protection of the command and comfort to the men.

(2) In uncovered movement, march outposts are established during long halts. They vary in strength and importance with the length of a halt, the terrain, the composition and dispositions of the column, and the proximity and situation of the enemy. They are established by the leading company without special orders. Elements of the company occupy vantage points for observation. Stronger detachments occupy critical terrain features controlling approaches to the main body and when necessary send out patrols.

■ 345. CROSS-COUNTRY MOVEMENT AND DEVELOPMENT.—*a. Daylight movement.*—(1) Daylight movement across country becomes necessary as the march progresses toward the enemy and attacks by hostile aviation increase in intensity. Advantage is taken of paths and trails for the march of small units. Terrain facilitating cross-country movement may make possible early advance on a broad front. Principal roads, prominent road junctions, and crossroads are avoided. Within the regimental zone, the leading battalion is charged with the missions of protecting the advance of the regiment, of driving in hostile covering forces encountered, and of securing important terrain features.

(2) The battalion is completely developed not later than the entrance into the zone of effective hostile medium artillery fire. The result of the development is to distribute the companies in such manner as best to insure the readiness of the battalion for action and to facilitate the movement of the

troops in formations best adapted to minimize the effects of hostile aviation and artillery fire.

b. Development order.—The development order of the battalion commander is usually issued in fragmentary form. The troops are promptly started toward their initial locations, and where practicable unit commanders are assembled at a point affording a view over the terrain of the advance. In its totality, the development order comprises—

(1) Available information relative to the enemy and friendly troops.

(2) Objective of the movement.

(3) Distribution of the troops.

(4) Initial location of rifle and heavy weapons companies, command group, unit trains, and attached units.

(5) Direction of advance; designation of base company (where necessary).

(6) Instructions for security; mission and objective of leading company; mission of antitank weapons; special antiaircraft missions of heavy machine guns.

(7) Instructions relative to battalion and company tactical transport; method of movement—whether assembled or distributed to platoons and companies; method and route of advance.

(8) Instructions relative to unit trains: route of movement; successive objectives.

(9) Signal communications and conventions.

(10) Initial location and route of movement of the command group.

c. Objective.—The objective of the approach march is fixed in accordance with the orders of the regimental commander, the situation, and the terrain. Where regimental orders direct an advance to a designated assembly area, the final objective will be the assembly area designated by the regimental commander. Regimental orders may, however, merely designate a movement objective at which further orders will be issued. In any case, the battalion commander frequently selects as intermediate or provisional objective terrain features of tactical importance. Such terrain features are especially those constituting an antitank obstacle, facilitating extensive views over the terrain of the advance, or affording conceal-

ment from hostile air and ground observation. Stream crossings and tactical localities such as woods, road junctions, and villages may also determine the bounds of movement.

d. Distribution of troops.—(1) In covered approach, the dispositions of the battalion are adapted to facilitating its movement and protecting the troops against air attack and the inroads of mechanized forces. Full advantage is taken of covered routes of approach. Concealment is generally of more importance than readiness for action against ground forces. Distribution in depth often permits the best utilization of the terrain, insures flexibility in the movement of units, and affords the best means for taking advantage of stream crossings and the passage of defiles. Special provision is made for the antiaircraft protection of the passage of a defile. The heavy weapons company frequently moves in the leading echelon, with a view to the prompt establishment of a base of fire on its assembly positions and the utilization of its machine guns for the antiaircraft protection of stream crossings and the passage of defiles.

(2) In uncovered approach, units are distributed with a view to readiness for action against both ground and air attack. The leading rifle company is charged with securing the advance of the battalion (par. 275). With it usually move attached reconnaissance elements and the ammunition and pioneer platoon with its transportation. Heavy machine-gun elements may be attached for the antiaircraft protection of the passage of defiles. The antitank platoon usually moves in the second echelon. The heavy weapons company (less antitank platoon and any detached machine-gun units) usually moves as the rear echelon of the battalion.

(3) The battalion commander regulates the advance of the battalion by the assignment of successive objectives to the leading rifle company, the base company of the rearward echelons, and the unit train. Instructions for the execution of each bound of advance are given as soon as units have reached assigned objectives.

(4) Throughout the advance, the battalion commander conducts reconnaissance for the location of objectives and of the routes of approach thereto. With assistance of liaison personnel, he explores the zone of the advance with a view to

locating obstacles, preparing minor stream crossings, and determining detours. He issues instructions for changes in dispositions in accordance with developments.

■ 346. RECONNAISSANCE.—A motorized reconnaissance detachment may be attached to a battalion in uncovered movement. It comprises several motor vehicles and usually operates from 2 to 3 miles in front of the battalion. It halts on successive objectives constituted by the more important terrain features. Observers are posted to cover the principal avenues of enemy approach. Distance between objectives and the duration of halts is normally such as to maintain the original distance of the reconnaissance detachment in front of the advance guard or the leading echelon. Near the enemy, resumption of the advance is usually made on the order of the battalion commander. Between objectives, the reconnaissance detachment advances by alternate echelons from one observation point to another. While one echelon remains in observation the other goes ahead to the next crest and stops under cover while men dismount and reconnoiter. Upon receiving a signal that all is clear, the second echelon advances past the first. Rapid movement between observation points is required. A third echelon may be held in reserve; it follows the others cautiously and brings back information in case the leading vehicles are ambushed. The third echelon pays particular attention to observation of routes leading from the flanks. When minor resistance is encountered, some men of the first echelon execute an outflanking maneuver. When necessary, other echelons move still farther to a flank to reduce the resistance or ascertain its extent.

■ 347. COMMAND AND COMMUNICATION.—*a.* In contact situations, retention of the initiative depends in large measure on the prompt acquisition and exploitation of information. Far-reaching reconnaissance and the systematic observation of the zone of the advance furnish the informational basis for the commander's decision and plan of action.

b. A great advantage accrues to the commander who has information correct as of the moment of his decision. Promptness in the transmission of reports is necessary to effective exploitation. Wherever conditions and available

means permit, the battalion commander maintains contact with his advance reconnaissance elements by means of voice, messengers, radio, or a light portable wire system. Reconnaissance detachment should be equipped with radio and the best optical instruments available.

c. The battalion commander moves with his leading rifle company. Designated members of the battalion staff, artillery liaison personnel, the communications officer, and the commander or reconnaissance officer of the heavy weapons company accompany him.

■ 348. BATTALION TRAINS.—The development order of the battalion commander prescribes the disposition of company carriers and the battalion train.

a. Ordinarily the company carriers move with the companies. Where, however, in covered approach especially favorable routes of advance are available for the vehicles, the battalion commander may direct the assembled movement of all the battalion vehicles. In uncovered approach, the carriers of the leading rifle company are required with the company. Those of rifle companies in subsequent echelons and the carriers of the heavy weapons company may move under the direction of the battalion transport officer.

b. The unit train, when under battalion control, usually moves as the rear echelon of the battalion. When it is assembled with the weapons carriers, the battalion supply officer or the battalion transport officer controls the movement, in accordance with seniority. The vehicles of the medical section are attached to the train. The field kitchens normally move under regimental direction. Transportation may follow the combat companies by bounds or it may move by an adjacent route.

■ 349. ANTITANK DEFENSE.—a. So far as consistent with other considerations, the battalion commander directs the movement of the battalion so as best to utilize terrain impracticable or difficult for hostile tank action. Location of such terrain is considered in fixing the bounds of movement of the battalion and the route and method of advance in the battalion zone.

b. For conduct of battalion antitank platoon in approach see paragraph 322. The battalion commander gives instructions for the action of platoon for each bound of movement in approach.

■ 350. PERSONAL RECONNAISSANCE.—The battalion commander carries out personal reconnaissance with a view to such utilization of the terrain, in connection with information relative to the enemy, that the combat action of the battalion can be organized in a minimum period. He must be prepared to dispose his battalion on an assembly position of his own selection or in an assembly area designated by the regimental commander. In either case early reconnaissance expedites the preparations of the battalion for action. Even where the assembly area is designated by the regimental commander, there is usually considerable latitude in the location of the battalion assembly position. The battalion commander is assisted by the reconnaissance officer and the commander of the heavy weapons company in his reconnaissance of assembly positions and the location of a base of fire.

■ 351. CONTACT COMBATS.—Isolated resistances encountered in the course of approach march are as far as practicable eliminated by outflanking action in accordance with the procedure in paragraphs 247*d* and 275*f*. Where, however, the battalion is confronted with a series of discontinuous resistances distributed over its whole front, it is usually best to attack a section of the hostile front with a view to outflanking the remaining resistances through the gap created. Such resistances must be promptly dealt with. Mortars are brought rapidly forward and, where practicable, artillery supporting fire is requested.

SECTION III

ATTACK

■ 352. ASSEMBLY FOR ATTACK.—*a*. Wherever practicable, the battalion organizes its attack in an assembly area designated by the regimental commander. Where reconnaissance indicates that terrain suitable for the organization of the battalion attack exists in advance of the regimental assembly

area, a partial order is issued in the initial assembly area; dispositions are completed in the final assembly position. Initial measures may be limited to the announcement of the situation, the regimental plan of action, the issuance of ammunition and instructions to trains, liaison measures with supporting artillery, and instructions to the leading (security) company for covering of the final assembly position. The other elements of the battalion move as in the previous phase of approach.

b. The final assembly position of the battalion must not lie beyond the last cover affording protection from hostile small-arms fire. Assembly areas should, when practicable, afford cover from both ground and aerial observation. Consideration should also be given, in the selection of the assembly area, to the protection afforded by the terrain against mechanized attack. There should be an observation point in the close vicinity affording a clear field of view over the terrain of the attack. Location of a final assembly area within effective heavy weapons range of the objective facilitates the organization of the initial base of fire.

c. The battalion commander designates assembly areas for each company, attached combat units, the trains, and the battalion command group. Assembly areas of rifle companies are assigned with regard to their subsequent contemplated employment in the attacking echelon and reserve. The assembly area of the heavy weapons company is designated with a view to the organization of the battalion base of fire.

d. In assembly following uncovered approach, the leading company protects the occupation of the assembly area. It occupies a security position far enough to the front to protect the other troops from hostile small-arms fire from positions within midrange. The security position may be occupied by the entire company, or it may detail a platoon for the execution of the security mission. The latter procedure is indicated in cases where the company is to be employed in the attacking echelon; its outguards may be withdrawn pursuant to the instructions of the battalion commander when the other companies are prepared to take over the security in their own front.

e. The battalion commander designates firing positions or positions in readiness for the antitank weapons so as to cover the principal directions of hostile tank approach. The positions and missions of the battalion antitank platoon are coordinated with those of the antitank guns covering the regimental assembly area. Part or all of the heavy machine guns occupy positions for antiaircraft fire during the occupation of the assembly area. Each commander occupies positions within his assigned assembly area so as to conceal troops and transportation from air and ground observation as far as practicable.

f. Extra ammunition, if not already issued, is issued to rifle companies in the assembly area from battalion ammunition vehicles. If practicable, they move into the company areas for this purpose. Otherwise they discharge the ammunition at the ammunition point designated by the battalion supply officer. The ammunition point is located in the most advanced area which is practicable in the situation. It is located with a view to facility of motor movement to the rear and concealment from air observation. Proximity to the probable route of company transport from the front is advantageous. The battalion commander directs the distribution of the ammunition and pioneer section between duties at the ammunition point and pioneer tasks which may be foreseen. The section operates the ammunition service at the ammunition point, loads and unloads vehicles, and when the situation does not permit the forward movement of motor carriers, furnishes ammunition bearers to the companies.

g. The initial location of the battalion aid station is determined in the assembly area. The locality selected for establishment of the aid station should be—

- (1) Concealed from enemy observation.

- (2) As close to the combat echelon as permitted by cover from enemy small-arms fire.

- (3) Secured from ground attack by dispositions of the battalion.

If practicable, it should provide shelter and water, and be on the natural route of movement of walking wounded from the front, close to a route of vehicular traffic to the rear. The company litter bearers join the companies with their

equipment in the assembly position. All companies and separate elements should be notified as to the location of the battalion ammunition point and aid station.

■ 353. PLANS OF ATTACK.—*a.* As far as practicable, the battalion commander completes his reconnaissance and forms his plan of attack as the assembly area is occupied. In accordance with his estimate of the situation and the regimental order, he determines where the main effort is to be made, the company to be charged therewith, and the fire support to be given it. The main effort aims to secure ground the possession of which will facilitate the capture of the objective or the advance of the other companies. It is usually made against a weak point in the hostile dispositions. The company intrusted with the main effort is supported by the bulk of the available fire power and by a secondary or holding attack. Where the company charged with the principal mission can be most effectively supported by a general advance, the company assigned to the secondary attack advances in conjunction with the main effort. A company charged with the secondary mission supports the main attack by fire only when the progress of the company appears to depend upon the occupation of an advanced terrain feature in the zone of the main effort and when its assembly position lies within effective range of its objective. Such will be the case when one company zone has only coverless terrain while the other zone affords facility for covered movement. In such case, the company making the secondary effort advances when the company making the main effort is in position to support it by flanking fire. Attack orders do not distinguish between principal and secondary attacks. The zone of action of the main effort company is usually relatively narrow but should include features necessary to its combat action.

b. The heavy weapons company organizes a base of fire to support the attack where the final assembly position is within effective range of the battalion objective (par. 335). Otherwise the commander of the heavy weapons company directs the mortar and heavy machine-gun platoons to follow the attacking echelon to positions from which they can direct effective fire in support of the attack. Artillery fire placed at the disposal of the battalion is chiefly directed in support

of the main effort. Artillery and heavy weapons fires supporting the main effort are directed against the targets most endangering the main effort company, whether they lie in its zone of action or in adjacent zones.

■ 354. ATTACK ORDER.—*a.* (1) The battalion attack order in its totality covers—

(a) Information relative to the enemy.

(b) Situation and missions of friendly troops; adjacent units; supporting artillery, tanks, and aviation; covering troops.

(c) Battalion plan of action, objectives, zone of action, line of departure, direction of attack, hour of attack.

(d) Base of fire: general position area of heavy weapons; target areas or sectors of fire.

(e) Assignment of rifle companies to attacking echelon and reserve; objectives and missions.

(f) Antitank measures; mission of antitank units.

(g) Supply: disposition of company carriers and unit trains; establishment of initial ammunition point; method of distribution of ammunition and other combat supplies.

(h) Initial location of aid station; distribution of medical section.

(i) Communications; initial command and observation posts and message center; telephone and radio; light wire local systems; panel stations and dropping grounds; signal light conventions.

(2) The method of establishing the base of fire varies according as the attacking rifle echelon is preceded by tanks or the battalion is supported by artillery only.

(a) Where tanks precede the attacking rifle echelon, the support of the tanks by the direct fire of machine guns controls the organization of the base of fire. Sectors of fire are assigned to machine-gun sections (par. 299).

(b) Where the attacking rifle echelon is supported by artillery only, the plan of artillery fires forms the framework for the organization of the infantry base of fire. The heavy infantry weapons supplement and reinforce the artillery fires. The mortars deal with targets too close to the attacking echelon or point targets too small in area to be dealt with by the artillery (par. 309).

(3) The initial objective of the battalion in the attack of a continuous resistance is usually the first continuous terrain feature in rear of the known or estimated location of the principal enemy resistance. Reunion of the attacking echelon and the tanks and reestablishment of the base of fire prepare the way for the advance to the regimental objective. Where, however, the initial objective has been reached with slight resistance, the advance continues without awaiting the completion of the displacement of the base of fire. All battalion transport is assembled as far forward as the situation and the terrain permit. Ammunition replenishment is effected where time is available. The battalion establishes immediate contact with the commander of tanks operating in his zone of action and gives him the battalion plan for the further advance.

(4) The attack order assigns the initial location of the reserve company. It usually follows the attacking echelon by bounds as directed by the battalion commander, prepared to support the main effort.

b. Trains.—(1) The battalion attack order directs the initial disposition of the company and battalion transport (weapons and ammunition carriers). Where assembled under battalion control, the carriers are located near the battalion ammunition point under the direction of the battalion transport officer. He is responsible for returning the carriers to their units whenever the situation permits. He maintains continuous reconnaissance of the situation of the attacking echelon and the heavy weapons and takes advantage of all opportunities to advance the carriers to their units. With the close approach of the attacking echelon to its objective, he sends forward any carriers under his control to the most advanced position permitted by the terrain and the situation.

(2) The battalion supply officer issues ammunition to empty carriers reporting at the ammunition point or directs them to the regimental distributing point. He reconnoiters routes to the rear and regulates movement of vehicles so as to avoid congestion and take best advantage of covered routes. He employs the ammunition section to supplement replenishment by motor carrier. Ordinarily the ammunition section transports ammunition for the heavy weapons company and the

weapons platoon of rifle companies only. Ammunition replenishment for the attacking echelon can ordinarily be effected only on capture of a terrain mask or when combat is interrupted by nightfall.

c. *Communications*.—The battalion command post is connected with the regiment through the axis of wire communications and by telegraphic and voice radio. When practicable, light portable wire lines (local systems) connect the battalion command post with the heavy weapons company and the rifle companies. The battalion commander communicates with liaison airplanes by means of panels, dropped messages, and conventional signals. The command post, message center, and signal installations are distributed so as to avoid congestion and exposure to hostile aerial observation.

■ 355. CONDUCT OF ATTACK.—a. The battalion commander follows the progress of the attacking echelon from an observation post which gives him the best available field of view over the terrain of the attack. He observes especially the action of the heavy weapons and the supporting artillery, and where necessary directs or requests the shifting of supporting fires in accordance with his plan of attack and developments in the situation. With the progress of the attacking echelon he moves his reserve by bounds in support of the main effort from successive cover positions. (For conduct of reserve company see par. 282a.) When the attacking echelon approaches assaulting distance, the reserve company should be advanced to the nearest covered position available in rear or on the flank of the assault company making the main effort.

b. When an open flank has been created by the advance of an adjacent unit, the battalion commander frequently moves the reserve company to a departure position for enveloping attack in the adjacent zone. He may also designate firing positions for heavy weapons in adjacent terrain for the support of the reserve company or for fire on resistances in front of the attacking echelon.

c. The displacement of a base of fire is ordinarily effected by echelon (par. 337). The battalion commander usually displaces his command post with the initial echelon of the fire base. Where terrain conditions and the situation of the attacking echelon impede support of the attacking troops by the

81-mm mortars on the battalion base of fire, the battalion commander directs their attachment to attacking companies.

■ 356. ASSAULT.—*a. General.*—The hostile resistance is frequently reduced by a series of local assaults delivered at different times by small units (squads, platoons, companies). Where the entire battalion is held up in front of a hostile resistance that cannot be outflanked, the battalion commander arranges for a prepared and coordinated assault with the support of the artillery and heavy infantry weapons. He either fixes an hour for the delivery of the assault or employs a prearranged signal for the purpose. With the support of all available weapons, the assaulting units advance as close to the objective as possible and charge the hostile resistance when the supporting fires are lifted.

b. Penetration of hostile resistance.—The battalion presses through to the regimental objective with minimum pause for reorganization on its initial objective. Early reconnaissance of a new base of fire and timely initiation of the fire base displacement prepare for a rapid organization of the breakthrough. (See par. 82.) Available reserves may be employed for maneuver or in relief of the attacking echelon.

■ 357. PURSUIT.—*a.* When the enemy retreats beyond range, pursuit is organized as soon as practicable. Any available reserves and motorized reconnaissance elements are sent forward to maintain contact. Companies in attacking echelon are reorganized, ammunition replenished, and the advance rapidly resumed.

b. Groups comprising all types of infantry weapons are constituted by attaching light mortars and machine guns to rifle platoons and heavy weapons to rifle companies.

c. Distant objectives are assigned to companies. Outflanking action is sought for wherever practicable with a view to cutting off retreat at stream crossings and defiles.

SECTION IV

DEFENSE

■ 358. DEFENSE POSITION.—*a. Occupation of position.*—(1) Defensive action by the battalion may be directed by the

regimental commander or may be ordered by the battalion commander pursuant to his general mission and developments in the situation. Depending on these factors the latitude exercised by the battalion commander may vary within wide limits.

(2) The method of occupation of a defensive position varies with the situation. Where conditions permit, troops are placed in a position of readiness with proper provision for security, pending the reconnaissance of the battalion commander. Necessity for immediate readiness for action may, however, require the prompt deployment of the troops and the occupation of positions on the basis of information immediately available. In such case, the battalion commander distributes the rifle companies to the combat echelon and the reserve, defines the general location of the main line of resistance, attaches a portion of the heavy machine guns to rifle companies, and assigns sectors of fire to the mortars and long-range missions to the heavy machine guns remaining under his control. In the continued occupation of the position, these initial measures are readjusted and expanded in accordance with the general procedure of more deliberately organized defense.

b. Reconnaissance.—Wherever practicable, the occupation of a defensive position is preceded by the personal reconnaissance of the battalion commander, accompanied by the artillery liaison officer, the commander of the heavy weapons company, and such other personnel as he may direct.

(1) The reconnaissance bears first upon the terrain of hostile approach. It seeks to determine—

(a) Areas which afford covered approach to the position or which could be used to screen the location of hostile reserves and supporting weapons.

(b) Obstacles and exposed stretches of terrain over which the enemy must pass, especially crests, edges of woods, village exits, and defiles.

(c) Commanding features of the terrain which may be expected to be occupied as hostile observation posts; and areas within the defensive position which would be exposed to hostile observation.

(d) Terrain features in the foreground which in friendly possession would screen important defensive areas from hostile observation, favor long-range fire action, and constitute the best available positions for security detachments.

(e) Defiladed areas where hostile forces might assemble for attack within the range of friendly supporting weapons.

(2) The detailed reconnaissance of the defensive position or area follows. It seeks to determine—

(a) Points from which observation of the foreground of the position can be most effectively carried out.

(b) Locations from which approaches to the position can be most effectively swept by frontal and flanking fire.

(c) Masks within the position which can be used to screen the location of reserves, the emplacements of antiaircraft and heavy weapons, and the approaches from the rear.

(d) Areas most menaced by probable avenues of hostile approach and fronts along which artificial obstacles to tank attack are most necessary.

(e) Areas especially vulnerable to gas concentrations.

Following his reconnaissance, the battalion commander issues his order and establishes his detailed plans.

■ 359. DEFENSE ORDER.—a. The battalion order covers—

(1) Information relative to the enemy and friendly troops, including the mission of the regiment, units on the flanks of the battalion, covering forces, artillery, antitank and aviation support.

(2) General plan of defense; boundaries of battalion defense area; exact course of the main line of resistance; distribution of rifle units to combat echelon, reserve, and where necessary, the combat outpost; any attachments to rifle companies.

(3) Defensive areas (boundaries) of rifle companies of the combat echelon; mission (par. 363a) and location of reserve; departure positions for counterattack; positions for flank defense.

(4) Missions and distribution of heavy machine guns (see par. 338); emplacements and target areas of battalion mortars; emplacements and sectors of fire of antitank weapons.

(5) Security elements: location and mission of combat outposts and advance detachments (pars. 100, 110, and 114).

(6) Supply: location of battalion ammunition point; aid station; arrangements for ammunition distribution, including amount to be dumped on the position if required; disposition of carriers and unit trains.

(7) Communications: location of battalion command and observation posts and message center; telephone and radio, light wire local systems, panel stations and dropping grounds, signal light connections.

b. The provisions of the battalion defense order are amplified by more or less detailed plans including: fire plan; plan of ground organization; counterattack plan; plans of antitank and antiaircraft defense (pars. 102 and 103).

■ 360. DISTRIBUTION OF TROOPS (see par. 95).—*a.* The most usual distribution places two companies in the combat echelon and one in reserve. Where, however, a portion of the battalion sector is exposed to hostile observation and fire, such area may be left unoccupied and covered by fire from the occupied area, the heavy weapons, and the artillery. In this case distribution in depth (successive companies) is indicated.

b. The heavy machine guns are distributed for the execution of three missions:

(1) Long-range fire from positions other than those in the main line of resistance.

(2) Close defense of the main line of resistance by reciprocal flanking action, covering the front of the position by continuous interlocking bands of fire, in combination with the light machine guns.

(3) Rear defense of battalion area, stopping hostile elements which may have penetrated the main line of resistance. These guns may also deliver long-range fires in front of the position.

c. The battalion mortars occupy positions to the rear and usually within 500 yards of the main line of resistance. They are usually distributed over a depth of from 100 to 200 yards. Exceptionally, where the battalion occupies an extensive front or in close terrain where visibility is poor, mortars may be attached to rifle companies.

d. Battalion antitank weapons usually occupy positions covering the main line of resistance (and the position of the combat outpost, where established).

■ 361. SECURITY (see par. 96).—The instructions of the battalion commander to the commander of the combat outpost cover—

a. Information relative to the enemy and friendly troops, especially as to any friendly troops operating in front of the outpost; artillery and heavy weapons support.

b. Position to be occupied by the outguards; any special patrols to be sent out.

c. Conduct in case of attack; method and time of withdrawal; action on completion of mission; antitank defense; long-range fires.

d. Communications; signal light conventions.

e. Administrative arrangements.

■ 362. FIRE PLAN.—a. The battalion plan of fire includes—

(1) *Long-range fires*.—These are delivered by the outpost and elements attached thereto for long-range fires; and by machine guns firing from positions in rear of the main line of resistance. Machine guns firing from positions to the rear of the main line of resistance may, depending on range and the location of the several defensive elements, fire on areas in advance of the outpost, in the outpost position (after withdrawal of the outpost), and on the zone between the outpost and the battle position.

(2) *Final protective fires*.—At least one-half of the heavy machine guns are assigned to positions and fire missions flanking the fronts of the main line of resistance. Their fires are combined with those of the rifle company light machine guns so as to cover the front with continuous bands of fire (par. 338).

(3) *Antitank fires* (par. 327).

b. The most urgent missions in the main line of resistance are satisfied first and fires within the position last. Portions of the plan are established concurrently by different agencies. Minor alterations of the original arrangements are frequently necessary.

c. The conditions under which the various fires are to be delivered, including the signals for prearranged fires, their duration, the method of obtaining their repetition or continuance, the persons authorized to call for them, the units responsible for their delivery, and the areas automatically

affected by calls for the various fires, are specially prescribed in the fire plan. Where practicable, fires are registered.

■ 363. RESERVE COMPANY.—*a.* The missions assigned to a reserve company vary with the nature of the terrain of the defensive position and the situation (par. 282*b*). According to circumstances, a reserve company may be employed—

(1) As a mobile unit for counterattack against hostile elements penetrating the battalion sector; or for the occupation of provisional flank positions in case of hostile penetration of an adjacent sector.

(2) As a holding force, extending in depth the zone of resistance constituted by the front-line companies.

b. The battalion commander fixes the location of a company held in mobile reserve. He designates provisional departure positions for counterattack against hostile elements penetrating the battalion area and flank lines of resistance to be occupied in case of penetration of an adjacent sector.

(1) The position of the battalion reserve is frequently in proximity to the position of regimental antitank guns supporting the battalion. Where this is the case, provision should be made for coordinating the dispositions and plans of the reserve with the contemplated antitank action. Protection of the antitank guns against hostile infantry may automatically result where a reserve company extends in depth the dispositions of the combat echelon. A reserve company held mobile for counterattack should, where feasible, occupy departure positions naturally impracticable for tank movement or rendered so by artificial means. The counterattack is launched, after the passage of hostile tanks, against the hostile infantry following.

(2) The battalion commander prepares the heavy weapons fire support of counterattacks. Heavy machine guns assigned as break-through guns (par. 336*c*) and mortars in rearward positions establish a supporting fire base. Forward mortars, where practicable, continue on their assigned fire missions in front of the main line of resistance, taking rearward enemy elements under fire. The weapons platoon of the reserve company reinforces the heavy weapons fires.

(3) The reserve company does not ordinarily move into an adjacent sector to counterattack hostile elements penetrating

that sector. In this situation it seeks to protect the battalion area from being rolled up from a flank by occupation of a position blocking off the penetrating elements.

(4) The battalion commander prescribes the location of flank lines of resistance and the works to be executed. He also frequently details working parties from the reserve to reinforce the combat echelon in the initial stages of the ground organization of the position. Where a battalion combat outpost is necessary, he usually details a platoon of the reserve company to constitute the outpost. Where the position is occupied for more than 1 day, provision for relief is made.

(5) The antiaircraft protection of the battalion reserve is provided by the heavy machine guns in rear positions (break-through guns) (par. 339d) and the weapons of the reserve company.

■ 364. GROUND ORGANIZATION PLAN (see par. 107a(3)).—*a.* The battalion commander fixes the exact course of the main line of resistance, and with the assistance of the commander of the heavy weapons company locates the emplacements and defines the sectors of fire of the machine guns and antitank weapons covering the main line of resistance. He usually locates a dummy position of resistance not closer than 500 yards to the true position and prescribes the works to be constructed. Construction of the dummy position commences simultaneously with the true position and progresses concurrently with it.

b. The battalion commander exercises close supervision over the organization of the ground and takes action to prevent local congestion of installations, emplacements, and combat positions. He usually delegates supervision of the construction of accessory defenses to the commander of the heavy weapons company. Where practicable he checks the camouflage of field works against air photographs of the position and takes such corrective action as may be necessary.

■ 365. WITHDRAWAL FROM ACTION (see par. 124).—*a.* The battalion commander usually receives instructions covering the following:

Location of the covering position.

Initial position of the regimental reserve.

Location of regimental assembly position or new defensive area.

Zone of withdrawal.

Hour of commencement of withdrawal.

Transportation to be allotted the battalion.

Based on the regimental order and other factors of situation, the battalion commander fixes the location of the battalion assembly area, order of withdrawal of the several elements, hour at which the movement of each element will commence, and route to be followed by each.

b. Night withdrawals.—(1) In addition to the usual information relative to the situation, the order of the battalion commander covers the following:

(a) Battalion zone of action and assembly position.

(b) Strength of the screening elements in each company of the combat echelon.

(c) Order and hour of withdrawal of each element as follows:

An echelon of the battalion headquarters and headquarters detachment, including message center and communications personnel.

Supply installations, including ammunition dumps; reserve supplies; carriers and trains.

Reserve units.

Elements of the heavy weapons company not required to cover the final protective line.

Support platoons.

Platoons of the combat echelon (less screening elements) and machine guns flanking the main line of resistance.

Screening elements.

(2) The assembly position is generally located to the rear of the initial position of the regimental reserve. A location in the close vicinity of a route of communication is frequently advantageous.

(3) Reconnaissance of routes to the assembly area is executed by daylight. Guides from the headquarters detachment are assigned to the several elements and instructed as to the routes of withdrawal. Where a stream crossing is in-

volved and ponton bridges are to be constructed, the proposed location of such bridges is ascertained and guides informed.

(4) Where a road passes through the battalion zone, anti-tank weapons may be emplaced to cover barricades along the road, especially at communication centers. Otherwise they withdraw with the first echelon of the heavy weapons company.

(5) Machine guns covering the final protective line are attached to rifle companies of the combat echelon for the withdrawal.

(6) Company transport usually joins the companies in the battalion assembly area.

c. Daylight withdrawal.—(1) Daylight withdrawal under enemy pressure is generally best prepared by the occupation of an intermediate position between the combat echelon and the regimental reserve by a reserve company supported by an echelon of the heavy weapons company.

(2) The movement of the combat echelon usually takes place by echelon from a flank, commencing with the company less closely engaged or disposing of the most favorable lines of withdrawal. Where the regimental reserve occupies a position on the flank of the battalion zone, it is generally best, if consistent with other considerations, to commence the withdrawal on the flank nearest the reserve position.

(3) An echelon of the heavy weapons company, attached to the remaining rifle company and occupying positions in its rear, protects its flanks and covers the area vacated by the withdrawing company. It moves to the intermediate position when directed by the rifle company commander.

(4) The battalion commander seeks to direct the fire of supporting artillery so as to interdict hostile movement into the areas initially vacated and protect the flanks of the troops remaining in position.

(5) The company transport joins the companies at the most advanced point permitted by the situation and the terrain. The transport of the heavy weapons company may join the company near its firing positions when enemy pressure is not close and approaches to the positions are masked by terrain features.

(6) For action of rifle companies in withdrawal see paragraph 281b.

■ 366. DELAYING ACTION.—*a.* Delaying action finds special application in the combat of security detachments, especially rear guards and outposts.

b. The battalion usually holds extensive frontages in delaying action, in many cases double that ordinarily held in a sustained defense.

c. The battalion commander ordinarily attaches heavy weapons to the rifle companies (par. 281a). Weapons carriers are held as close to the combat echelon as the situation and the terrain permit. The battalion commander is frequently assigned a platoon or section of regimental antitank guns and a platoon of light howitzers.

d. The battalion executes delaying action by holding a series of positions (par. 128) affording fields of fire at long range or covered by an antitank obstacle. In any case, the greatest consideration must be given to the practicability of the terrain for hostile tank movement. It is frequently advisable to leave unoccupied wide frontages which can be covered from adjacent areas impracticable for tank movement.

e. As a general rule, hostile tanks to be dealt with in delaying actions are of the more lightly armored type, vulnerable to the fire of the battalion antitank weapons. The more heavily armored vehicles ordinarily do not appear until a strongly held defensive position must be attacked.

f. The withdrawal to successive positions takes place in accordance with the provisions of paragraph 365.

APPENDIX I

GLOSSARY

Advance by bounds.—An advance controlled by the assignment of successive movement objectives usually from one terrain line to the next.

Advance by echelon.—An advance of a unit by successive movements of its component elements.

Alternate firing position.—A firing position from which the same fire missions can be executed as from the primary firing position.

Approach march.—The advance, usually in extended dispositions from the point where hostile medium artillery fire is expected or air attack is encountered to the point of effective hostile small-arms fire. It ordinarily commences with the development of companies and larger units and terminates with their complete or partial deployment as skirmishers.

Assembly area (or position).—The area in which elements of a command are organized preparatory to further action. For example, in the attack, liaison with supporting arms is arranged; objectives and other missions are assigned to component units.

Attacking echelon.—The leading echelon in attack. For example, in attack, it comprises infantry units which are advancing by fire and movement to close with the enemy.

Base of fire.—The supporting weapons of the unit of the attacking echelon when emplaced in firing positions to support the advance. For example, a base of fire is said to be established when units of the attacking echelons have been placed in departure positions and supporting weapons occupy firing positions with assigned target areas or sectors of fire to support the attack. The purpose of the organization of a base of fire is to bring about close coordination between the advance of the attacking echelon and the fire of supporting weapons.

Base unit or base of movement.—The unit on which a movement is regulated.

Battalion defense area.—See Defense area. For example, a section of the principal or outpost zone of resistance assigned to a battalion by the regimental or higher commander. Troops are disposed in the battalion defense area in width and depth so as to provide all-around defense of the area and mutual support for adjacent defensive areas.

Battle position.—The position of principal resistance in defense, consisting of a system of mutually supporting defensive sectors (areas) disposed in breadth and depth.

Beachhead.—Position occupied by advance troops landing on a hostile shore to protect landing areas for other friendly troops and for supplies on the beach or at a port.

Bridgehead.—Position occupied by advance troops to protect the passage of a river or defile by the remainder of the command.

Combat echelon.—The principal element of offensive or defensive power. For example, the infantry echelon in defense occupying the principal battle position.

Combat outpost.—The outpost or security detachments established by subordinate commanders (company or battalion) when the distance of the security echelon from the main line of resistance is so reduced that the security troops can be more effectively coordinated with, and supported by, the combat echelon than a separate outpost under the control of higher commanders. For example, for a company it usually consists of one or more small outguards posted within a close range of the position; a battalion, several platoons sent forward as outguards beyond close range and within the effective range of battalion heavy weapons.

Company defense area.—See Defense area. For example, a company defense area is a section of the battalion defense area assigned to a rifle company by the battalion as its task in the all-around defense of the battalion area.

Compartments of terrain.—An area of terrain inclosed on at least two sides by critical terrain features such as ridge lines, woods, water courses.

Corridor.—A compartment of terrain of which the longer dimension lies generally in the direction of movement or leads toward an objective. For example, an avenue of approach having natural terrain features on its two flanks which limit observation and direct fire from positions outside the corridor constitutes favorable lines of advance for friendly or hostile forces.

Counterattack.—An attack by part or all of the defending force against a hostile attacking force for the purpose of regaining ground lost or for destroying hostile elements.

Cover position.—A position immediately in rear of the fire position which affords protection to the riflemen, or to a weapon, from hostile flat-trajectory fire.

Covered approach march.—An approach march which is protected by forces sufficiently strong to provide security against hostile ground attack.

Debouch (debouchment).—*a.* To emerge from cover into an open area under enemy fire or ground observation. For example, "The rifle elements debouched from final assembly areas following the rear elements of the attacking light tanks."

b. To emerge from a defile into a wider, more open area. For example, "The battalion debouched from the eastern exits of the village."

Defense area.—That part of a battle position (or out-post zone) assigned to a unit as its area of responsibility in the all-around defense of the area of a higher unit, ordinarily used when referring to units smaller than a regiment. (See Sector.)

Defladed.—Protected from hostile ground observation and fire, by a mask.

Deployment.—An extension of the front of a command. For example, to take up one of the formations prescribed in extended order, FM 22-5.

Development.—The distribution of a command from mass or route-column dispositions into smaller columns or groups in preparation for action. The extension in width and depth of companies and larger infantry units preparatory to approach march.

Direct fire.—Fire in which the firer aims the weapon by means of sights directly at the target. *Compare* Observed fire.

Displacement.—The movement of supporting weapons from one firing position area to another. For example, in attack the successive movement of supporting weapons to correspond with the progress of the attacking echelon in order to keep weapons within efficient supporting distance thereof.

Emplacement.—A prepared position from which a unit or a weapon executes its fire missions.

Enfilade (verb).—To fire at a target so that the fire coincides with the long axis of the target. For example, to fire against troops disposed in a generally linear formation from their direct flank and along the direction of their front.

Envelopment.—An attack against a hostile front and against one or both of its flanks.

Fire control.—Fire control includes in its scope all operations connected with the preparation and actual application of fire to a target. Specifically, it includes supervision over the computation of fire data, the designation and engagement of targets, class and rate of fire, the opening and cessation, and number of rounds. Fire control is exercised by commanders having under their command one fire unit or several fire units controlled as a unit. For example, a machine-gun platoon of two sections may fire as a unit at the command of the platoon leader (fire control) or by the assignment of fire missions (sectors of fire, target areas) to the sections (fire direction).

Fire direction.—A commander exercises fire direction functions by the assignment of fire missions to the component fire units of his command. Instructions for fire direction include the designation of target areas or sectors of fire where fire is to be placed; they may also prescribe the conditions under which fire is to be opened (hour, order of fires) and the ammunition expenditure for each fire. Fire direction is exercised by commanders having several fire units under their command.

Fire discipline.—Fire discipline is a state of order, coolness, efficiency, and obedience existing among troops engaged in a fire fight. The enforcement of fire discipline is the func-

tion of leaders in immediate command of the soldiers engaged in the operation of weapons and the delivery of fire.

Fire position.—A locality or emplacement from which a unit or a weapon executes fire missions; classified as primary, alternate, or supplementary (see definitions under respective titles).

Flank.—The side of a command from the leading to the rearmost element, inclusive. *Right flank* is the right side when facing the enemy, and does not change when the command is moving to the rear.

Flanking attack.—Attack directed against the flank of a hostile force.

Flanking fire.—Fire directed against a unit or objective from an area on its flank. Flanking fire may be enfilade or oblique.

Holding attack (secondary attack).—The part of the attack designed to hold the enemy in position and prevent the redistribution of his reserves; it is ordinarily directed toward the hostile front.

Infiltrate (verb).—To pass troops in relatively small numbers through gaps in the enemy position or his field of fire. For example, to advance individuals by bounds during an attack.

Interdiction.—Fire delivered on certain areas or routes to prevent or hinder their use. For example, fire which seeks to make untenable certain areas or to interrupt movement over certain routes of communication (may also be effected in certain situations by contamination of the ground by persistent gas or by land mines). Interdiction may be partial or complete.

Keypoint.—A tactical locality affording observation and communication, the possession of which is vital to the success of an engagement.

Line of departure.—A line designated to coordinate the departure of attack elements.

Local security.—A security element, independent of any outpost, established by a subordinate commander to protect his unit against surprise and to insure its readiness for action.

Main attack.—That part of the attack where the commander concentrates the greatest possible power. *Compare* Holding attack.

Main line of resistance (MLR).—A line at the forward boundary of the battle position designated to coordinate the defensive fires of all units and supporting weapons.

Observed fire.—Fire which can be adjusted by ground observation of the target either at the emplacement of a weapon or at an observation point in liaison with it.

Outguard.—The most forward security unit posted by an outpost. For example, a detachment of at least sufficient strength to post three reliefs of single or double sentinels. Usually posted by a support and consists of a squad or half squad. In larger outposts a rifle platoon may be posted as an outguard. Where a support posts more than one outguard, outguards are numbered from right to left within each support. *See* Support (of outpost).

Outpost line of resistance (OPLR).—A line designated to coordinate the fires of the elements of the outpost and its supporting artillery. For example, where the outpost is ordered to hold its position in case of hostile attack, the outpost line of resistance has the same function in respect to the outpost as the main line of resistance has for the battle position.

Phase line.—A line or terrain feature on which units may be halted for control, coordination, or further orders.

Platoon defense area.—*See* Defense area. For example, a platoon defense area comprises a section of the company defense area assigned to a rifle platoon as its task in the all-around defense of the company area.

Predranged fires (scheduled fires).—Supporting fires for which the fire data are prepared in advance and which are delivered to a time schedule or on call from the supported troops.

Primary fire position.—The position from which a unit or weapon executes its primary mission.

Primary target area.—The target area assigned as the principal fire mission of a weapon or unit. *Compare* Secondary target area.

Protective fires.—Fires placed by supporting weapons on enemy rearward areas for the purpose of hindering enemy fire or movement against the friendly attacking rifle or tank elements. For infantry weapons such fires are usually delivered at long range.

Rallying point.—A point, designated by a unit commander, where he assembles his unit for further operations after the attack of an objective. For example, used by Infantry in night attacks and similar operations.

Regimental reserve line (RRL).—A line designated to coordinate the locations and actions of the regimental reserves in a battle position. For example, it may form the line of departure for all planned counterattacks and usually marks the forward limit of artillery position areas for defense of the main line of resistance.

Regimental sector.—See Sector. For example, the area defended by a regiment, including the area in front of the MLR to the limit of fire of direct support artillery, and the rear areas of the battle position to include the regimental supply installations.

Reserve.—A fraction of a command held initially under the control of the commander to influence future action.

Road block.—A barrier to block or limit the movement of hostile vehicles along a road.

Route march.—The advance in column on roads.

Scheme of maneuver (plan of attack).—The commander's plan for employing subordinate units to accomplish a mission. For example, in the attack it usually distributes the troops for two general missions:

A holding attack, usually frontal.

The main effort which may seek penetration or envelopment.

Sector.—The defense area designated by boundaries within which a unit operates on the defense. (Ordinarily used when referring to regiments and higher units.)

Sector of fire.—A section of terrain designated by boundaries assigned to a unit or to a weapon to cover by fire. For example, the sector begins at the position or emplacement of the weapon or unit and is limited on its sides by prescribed boundaries, and at its extremity by the limit of

range of the weapon or weapons or by observation at the firing position(s). The boundaries may be defined by the designation of points or, in the case of weapons, by an arc of fire. *Compare* Target area.

Secondary target area.—Any target area(s) assigned as secondary fire mission(s) to a weapon or unit to be engaged when not required to fire on its primary target. Priority of engagement may be assigned numerically in order of importance to several secondary target areas assigned to one unit or weapon. *Compare* Primary target area.

Supplementary fire position.—A fire position assigned to a unit or weapon to accomplish secondary fire missions other than those to be accomplished from primary or alternate positions. *Compare* Primary fire position; Alternate firing position.

Support.—The second echelon (reserve) of a rifle company or platoon in attack or defense.

Support (of outpost).—The principal echelon of resistance of an outpost. For example, it is usually established along the outpost line of resistance to block sudden enemy attack. Outpost supports furnish outguards to establish security and observation for their positions. A rifle platoon or rifle company usually constitutes a support of an outpost. Where an outpost establishes more than one support, supports are numbered from right to left within the outpost.

Support (of advance guard).—The echelon of the advance guard that precedes the advance-guard reserve. The support sends out, and is preceded by, the advance party.

Supporting fire.—Fire delivered by auxiliary weapons on the immediate objectives of attacking elements.

Supporting distance.—When applied to small infantry units, that distance between two elements which can be effectively covered by the fire of either.

Squad defense area.—See Defense area. For example, a squad defense area comprises a section of the platoon defense area assigned to a rifle squad as its task in the all-around defense of the platoon area.

Surveillance.—An active, thorough, and continuous search by observation and reconnaissance of an area or of hostile dispositions.

Target area.—An area assigned to a unit or to a weapon to cover by fire. The limits of the area are prescribed by the commander assigning the area. Firing positions are selected to engage any targets appearing in the area. *Compare* Sector of fire. (For classification of target areas see Primary target area; Secondary target area.)

Zone of action.—A zone designated by boundaries in an advance or a retrograde movement within which the unit operates.

APPENDIX II

ORGANIZATION, ARMAMENT, AND EQUIPMENT OF INFANTRY UNITS

■ 1. GENERAL.—The paragraphs following cover the tactical organization, armament, and equipment of the various infantry units at the writing of this manual. The composition and basic tactical equipment are listed herein to indicate the basis for tactical employment of each unit. Minor changes in equipment and personnel may be accomplished in Tables of Organization and Tables of Basic Allowances published subsequent to the issuance of this manual. Such minor changes should not be construed to alter the tactical doctrine contained in the body of the manual, where the unit concerned retains the fundamental composition and principal armament as indicated in this Appendix.

■ 2. RIFLE SQUAD (pars. 216 to 235, incl.).—*a. Composition.*—The squad at full strength consists of 1 sergeant (squad leader), 1 corporal (second-in-command), and 10 privates and privates, first class. When the strength of the squad falls below six men, and replacements are not immediately available, it is combined with another squad or its personnel is distributed among the other squads of the platoon or company.

b. Armament and equipment.—All members of the squad are armed with the rifle and bayonet. The squad equipment is distributed as follows:

- 1 cutters, wire—squad leader.
- 1 ax, intrenching—second-in-command.
- 1 glass, field—squad leader.
- 3 pick mattocks, intrenching—3 privates.
- 7 shovels, intrenching—7 privates.
- 2 compasses—squad leader, second-in-command.
- 6 signal panels—squad leader, second-in-command; 4 privates.

■ 3. **AUTOMATIC RIFLE SQUAD** (pars. 236 to 244, incl.).—*a. Composition.*—The automatic rifle squad comprises a squad leader, a second-in-command, and six men. In attack, the squad includes two teams, consisting of three men each, one of whom is designated as team leader. In defense, an additional automatic rifle may be provided, in which case three teams of two men each are formed.

b. Armament and equipment.—The squad leader is equipped with a field glass and wire cutters. Two members of the squad are equipped with a pick mattock, four with a shovel, and one with an ax. The armament of the automatic rifle squad comprises two automatic rifles, four rifles, and two pistols.

■ 4. **RIFLE PLATOON** (pars. 245 to 250, incl.).—*a. Composition.*—A rifle platoon comprises three rifle squads, an automatic rifle squad, and a command group. The command group comprises a platoon leader, a platoon sergeant, a platoon guide, and two messengers. Five additional basic privates may be provided as replacements. The platoon leader distributes them as required by the situation.

b. Armament and equipment.—The platoon sergeant is armed with a rifle and equipped with a field glass, compass, and wire cutters. The platoon guide is armed with a pistol and equipped with a signal projector. The messengers are armed with rifles and carry either a pick mattock or shovel. Basic privates are armed with rifles and carry either ax, pick mattock, or shovel.

■ 5. **WEAPONS PLATOON, RIFLE COMPANY** (pars. 251 to 255, incl.).—*a. Composition.*—The rifle company weapons platoon comprises a command group, one 60-mm mortar section, and one light machine-gun section. The command group comprises: Platoon leader; platoon sergeant, second-in-command; transport corporal; two messengers; two chauffeurs.

b. Armament and equipment.—The platoon sergeant is equipped with a field glass and armed with a rifle. The transport corporal and the two messengers are armed with rifles and carry intrenching shovels. Each chauffeur is armed with a rifle.

c. Transport.—Two motor weapons carriers transport the weapons of the platoon. Their combat load comprises—

One carrier:

- 3 mortars (60-mm), complete, and equipment of mortar section.
- 180 rounds 60-mm mortar ammunition.
- 1 automatic rifle for defense and for antiaircraft fire from carrier.

One carrier:

- 2 light machine guns.
- 6,000 rounds caliber .30 machine-gun ammunition.
- 1 automatic rifle for defense and for antiaircraft fire from carrier.

■ 6. LIGHT MACHINE-GUN SECTION (pars. 256 to 265, incl.).—

a. Composition.—The light machine-gun section consists of a section leader (sergeant), 1 messenger, and 2 machine-gun squads. Two basic privates may be provided. The squad comprises a corporal and 4 men (1 gunner, 1 assistant gunner, 2 ammunition bearers).

b. Armament and equipment.—All members of the section are armed with the pistol except the messenger and any basic privates who are armed with the rifle. Each squad is equipped with one caliber .30 light machine gun (air-cooled) and accessories. When moving off carrier, the normal ammunition supply per gun is 1,250 rounds (5 ammunition chests). The assistant gunner carries one chest (250 rounds) and each ammunition bearer two chests (500 rounds). Company weapons carriers carry additional ammunition for each gun. The section leader carries wire cutters, field glass, and compass; each squad leader, an ax, field glass, and compass; one man, a pick; three men each, a shovel.

■ 7. 60-MM MORTAR SECTION (pars. 266 to 271, incl.).—

a. Composition.—The 60-mm mortar section comprises: 1 sergeant (section leader), 1 messenger, 3 60-mm squads; 2 basic privates may be provided. The squad comprises: 1 corporal (squad leader and gunner), 1 assistant gunner, 3 ammunition bearers.

b. Armament and equipment.—(1) In the section the messenger and any basic privates are armed with the rifle; all others with the pistol. In the squad all members are armed with the pistol. Each squad is equipped with one 60-mm mortar.

(2) The section leader carries wire cutters, field glass, and compass; the messenger, a shovel; each squad leader, an ax, field glass, and compass; 2 men each, a pick; 2 men each, a shovel.

■ 8. RIFLE COMPANY (pars. 272 to 288, incl.).—*a. Composition.*—The rifle company comprises three rifle platoons, a weapons platoon, and company headquarters. Company headquarters includes the personnel necessary to assist the company commander in performing his duties of control, administration, and supply of the company. The members of company headquarters are grouped according to the nature of their duties into: the command group—the company commander, first sergeant, communications sergeant, 1 bugler, 1 orderly, 4 messengers; the administration and supply group—the supply sergeant, the mess sergeant, cooks and cooks' helpers, armorer artificer, and company clerk (corporal).

b. Armament and equipment.—All members of the command group are armed with the pistol except the messengers and the orderly who are armed with the rifle. Members of the administration and supply group are armed with the rifle. Noncommissioned officers of the command group and the bugler are equipped with field glasses and compasses. The bugler and orderly each carry an intrenching shovel. One messenger carries an intrenching pick; two carry shovels; one carries wire cutters; each carries a compass. Intrenching tools of the command group are interchanged among members of the command group as necessary.

■ 9. HEAVY MACHINE-GUN SQUAD AND SECTION (pars. 289 to 293, incl.).—*a. Composition.*—The caliber .30 machine-gun section comprises a section leader and two squads. Each squad comprises: 1 corporal (squad leader), 1 gunner, 1 assistant gunner, 4 ammunition bearers, and 1 chauffeur.

b. Armament and equipment.—(1) Each squad is equipped with 1 caliber .30 water-cooled machine gun, 1 motor weapons and ammunition carrier, 27 ammunition chests, 4 water chests, and other necessary accessories as prescribed by Tables of Basic Allowances.

(2) The section leader is armed with a pistol and equipped with a compass, wire cutter, and field glasses. All members of

the squad, except the chauffeur, are armed with the pistol; the chauffeur with a rifle. The following equipment is distributed among the members of the squad:

- 1 ax, intrenching.
- 2 pick mattocks, intrenching.
- 4 shovels, intrenching.
- 1 compass, 1 pair field glasses—squad leader.

■ 10. HEAVY MACHINE-GUN PLATOON (pars. 294 to 300, incl.).—

a. Composition.—The platoon comprises two sections and a command group, consisting of the platoon leader, 1 agent and instrument corporal, 1 instrument corporal, 1 transport corporal, 1 chauffeur (for command car), and 2 messengers. Three basic privates may be provided.

b. Armament and equipment.—All members of the command group are armed with the pistol except the transport corporal, chauffeur, and messengers, who are armed with the rifle. The platoon sergeant and the instrument corporals are equipped with field glasses. Basic privates are armed with the pistol and carry an intrenching tool. One messenger carries an intrenching pick, the other an intrenching shovel. The command group is equipped with a command car and fire-control instruments.

■ 11. 81-MM MORTAR PLATOON (pars. 301 to 315, incl.).—

a. Composition.—The platoon comprises a command group and four mortar squads. The command group comprises the platoon leader, the platoon sergeant, agent and instrument corporal, instrument corporal, transport corporal, 1 chauffeur, and 2 messengers. Three basic privates may be provided. The mortar section comprises a section leader and two mortar squads. The squad comprises—

- Corporal, squad leader.
- Gunner.
- Assistant gunner.
- Four ammunition bearers.
- Chauffeur.

When the mortar is transported by hand, only three men are available for ammunition carriage.

b. Armament and equipment.—(1) The platoon sergeant, the section leaders, and the instrument corporals are armed

with the pistol and equipped with field glasses and compass. The transport corporal, chauffeurs, and the messengers are armed with the rifle. The command group is equipped with a command car and fire-control instruments.

(2) Each squad is equipped with an 81-mm mortar, including mount and accessories and a motor weapons carrier. The carrier transports the mortar, mount, accessories, and ammunition; one automatic weapon for antiaircraft fire is mounted on the carrier. The chauffeur is armed with a rifle. All other members of the squad are armed with the pistol.

(3) Each squad is equipped with two sound-power telephone hand-sets and two reels, each containing 400 yards of assault wire for fire-control communication as directed by the platoon leader.

(4) Mortar ammunition includes heavy and light high explosive shell and smoke shell. Each soldier serving as ammunition carrier transports 6 rounds of light or 4 rounds of heavy shell.

■ 12. BATTALION ANTITANK PLATOON (pars. 316 to 328, incl).—*a. Composition.*—The battalion antitank platoon consists of a command group and two sections. The command group comprises a platoon leader, platoon sergeant, agent and instrument corporal, transport corporal, 1 chauffeur, 2 messengers. Three basic privates may be provided. They are armed with the pistol. The section comprises a section leader and two squads. The squad comprises the squad leader (corporal), gunner, assistant gunner, 1 chauffeur, 4 ammunition bearers.

b. Armament and equipment.—(1) In the command group the platoon sergeant and agent and instrument corporal are armed with the pistol and equipped with field glasses and compass; the transport corporal, chauffeur, and messengers are armed with a rifle. Chauffeurs and messengers are equipped with compasses. The command group is equipped with one command car and the necessary fire-control equipment.

(2) The section leaders are armed with the pistol and equipped with field glasses and compass.

(3) In the squad all members except the chauffeur are armed with the pistol; the chauffeur is armed with the rifle.

(a) The individual equipment of the squad includes—

- 1 compass—squad leader.
- 1 wire cutters—squad leader.
- 1 field glasses—squad leader.
- 2 axes, intrenching—2 privates.
- 1 pickmattock, intrenching—1 private.
- 3 shovels, intrenching—3 privates.

(b) The equipment of the squad consists of one antitank weapon complete with spare parts and other accessories necessary to keep it in action; and one weapons carrier to transport the gun, accessories, and ammunition.

■ 13. HEAVY WEAPONS COMPANY (pars. 329 to 341, incl.).—*a. Composition.*—The company consists of a company headquarters, two caliber .30 machine-gun platoons, one 81-mm mortar platoon, and the battalion antitank platoon. The company headquarters is composed of a command group and an administration and supply group.

(1) The command group comprises the company commander, reconnaissance officer, 1 first sergeant, 1 reconnaissance and signal sergeant, 1 bugler, 1 orderly, 3 messengers (the bugler and 1 messenger especially trained as observers), 1 transport sergeant, 1 motor mechanic, 1 chauffeur, 2 motor-cycle messengers.

(2) The administration and supply group consists of a supply sergeant, mess sergeant, cooks and cooks' helpers, two armorer artificers, and the company clerk (corporal). Six basic privates may be provided.

b. Armament and equipment.—All members of the command group are armed with the pistol except the messengers and the orderly who are armed with the rifle. All members of the administration and supply group are armed with the rifle. All noncommissioned officers of the command group and the bugler are equipped with field glasses. The bugler and orderly carry an intrenching shovel. One messenger carries a pick; one, a shovel; and one, wire cutters. Intrenching tools are interchanged among members of the command group to provide tools for the preparation of

observation posts and other locations requiring excavation. The heavy weapons are—

- 8 caliber .30 water-cooled machine guns.
- 4 antitank weapons.
- 4 81-mm mortars.

■ 14. BATTALION HEADQUARTERS DETACHMENT (pars. 342 and 343).—*a. Composition.*

- (1) *Battalion headquarters section.*
 - 1 technical sergeant, battalion sergeant major.
 - 1 corporal, gas noncommissioned officer.
 - 1 corporal, headquarters clerk.
 - 2 chauffeurs.
 - 2 orderlies for battalion staff officers.
 - 4 basic privates may be provided.
- (2) *Message center section.*
 - 1 staff sergeant, section leader.
 - 1 corporal, chief record clerk.
 - 2 clerks, record.
 - 4 foot messengers.
 - 2 motorcycle messengers.
- (3) *Intelligence section.*
 - 1 staff sergeant, section leader and draftsman.
 - 1 corporal, intelligence.
 - 6 men, scouts and observers.
- (4) *Ammunition and pioneer section.*
 - Sergeant, section leader.
 - Two squads, each consisting of—
 - 1 corporal, squad leader.
 - 1 chauffeur, drives squad truck.
 - 7 men (ammunition handlers and pioneers).

The headquarters detachment performs its own interior administration as a company. The battalion sergeant major performs the duty of detachment first sergeant and supply sergeant. The detachment is attached for rations to one of the companies of the battalion.

b. Armament.—Headquarters, message center, and intelligence:

- (1) All members of sections are armed with the rifle except the sergeant major and section leaders who are armed with the pistol.

(2) In the ammunition and pioneer section the section leader and chauffeurs are armed with the rifle; all other members are armed with the pistol.

c. Equipment.—(1) The message center section is provided with cipher devices, codes, and panel sets.

(2) All members of the intelligence section are equipped with field glasses. Two sets of pole climbers are provided.

(3) Intrenching equipment is also provided.

■ 15. BATTALION SECTION, COMMUNICATION PLATOON (from regimental headquarters company).—*a. Composition.*—1 lieutenant, battalion communication officer; 1 technical sergeant, section leader and battalion communication chief.

(1) *Wire communication.*

1 staff sergeant, wire chief.

1 corporal, switchboard chief operator.

2 switchboard operators.

1 corporal, lineman.

3 linemen.

1 chauffeur.

1 motorcyclist.

(2) *Radio communication.*

1 staff sergeant, radio chief.

4 radio operators.

1 chauffeur.

b. Armament.—The chauffeurs and motorcyclist are armed with the rifle; all other members of the section are armed with the pistol.

c. Equipment.—The section is provided with—

1 telegraph radio—regimental net.

2 voice radios—intrabattalion.

4 miles telephone wire (wire equipment).

1 switchboard.

4 telephones.

1 telegraph set (for simplexing telephone lines).

■ 16. TRANSPORTATION, RIFLE BATTALION.—*a. Organic.*

(1) Rifle companies—6 $\frac{1}{2}$ -ton weapons carriers.

(2) Heavy weapons:

16 $\frac{1}{2}$ -ton weapons carriers.

5 command and reconnaissance cars.

2 motorcycles.

(3) Battalion headquarters detachment:	
2 ½-ton ammunition carriers.	
2 command and reconnaissance cars.	
2 motorcycles.	
Total vehicles	35
b. Attached.	
From regimental headquarters company, communication section.....	2 ½-ton (1 radio, 1 wire). 1 motorcycle.
From service company, battalion section.....	9 1½-ton cargo (4 ammunition carriers; 5 kitchen and baggage with 4 trailers.) 1 motorcycle with side car.
From medical section.....	3 ½-ton carriers.
Attachments.....	15
Total.....	50

APPENDIX III

LIST OF REFERENCES*

- FM 2-15, CFM, Employment of Cavalry. (Now published as CFM, vol. III.)
- FM 5-15, EFM, Field Fortifications.
- FM 5-20, EFM, Camouflage.
- FM 5-25, EFM, Explosives and Demolitions.
- FM 5-30, EFM, Engineer Antimechanized Measures.
- FM 8-10, MFM, Tactics and Technique of Medical Service of Infantry and Cavalry Divisions.
- FM 21-5, BFM, Military Training.
- FM 21-6, BFM, List of Training Publications.
- FM 21-10, BFM, Military Sanitation and First Aid.
- FM 21-15, BFM, Equipment, Clothing, and Tent Pitching.
- FM 21-20, BFM, Physical Training (Now published as ch. 4, BFM, vol. I.)
- FM 21-25, BFM, Map and Aerial Photograph Reading (Now published as ch. 5, BFM, vol. I.)
- FM 21-30, BFM, Conventional Signs, Military Symbols, and Abbreviations.
- FM 21-35, BFM, Sketching.
- FM 21-40, BFM, Defense Against Chemical Attack.
- FM 21-45, BFM, Scouting and Patrolling, Dismounted (Now published as ch. 9, BFM, vol. I.)
- FM 21-50, BFM, Military Courtesy, Salutes, Honors, and Discipline (Now published as ch. 1, BFM, vol. I.)
- FM 22-5, BFM, Infantry Drill Regulations.
- FM 23-5, BFM, U. S. Rifle, Cal. .30, M1.
- FM 23-10, BFM, U. S. Rifle, Cal. .30, M1903.
- FM 23-15, BFM, Browning Automatic Rifle, Cal. .30, M1918A2, with Bipod.
- FM 23-20, BFM, Browning Automatic Rifle, Cal. .30, M1918, without Bipod.
- FM 23-25, BFM, Bayonet, M1905.

*This list is for ready convenience, but the complete list of training literature will be found in FM 21-6.

INFANTRY FIELD MANUAL

- FM 23-30, BFM, Hand Grenades.
- FM 23-35, BFM, Automatic Pistol, Cal. .45, M1911 and M1911A1.
- FM 23-55, BFM, Browning Machine Gun, Cal. .30, M1917.
- FM 23-60, BFM, Browning Machine Gun, Cal. .50, HB, M2, with Ground Tripod.
- FM 23-70, BFM, 37-mm Antitank Gun, M3.
- FM 23-75, BFM, 37-mm Gun, M1916.
- FM 23-85, BFM, 60-mm Mortar, M2.
- FM 23-90, BFM, 81-mm Mortar, M1.
- FM 24-5, BFM, Signal Communication.
- FM 25-10, BFM, Motor Transport.
- FM 26-5, BFM Interior Guard Duty.
- FM 30-5, BFM, Military Intelligence, Combat Intelligence.
- FM 30-10, BFM, Military Intelligence, Observation.
- FM 30-15, BFM, Military Intelligence, Examination of Enemy Personnel, Repatriates, Documents, and Matériel.
- FM 30-25, BFM, Military Intelligence Counterintelligence.
- FM 30-30, BFM, Military Intelligence, Identification of U. S. Government Aircraft.
- FM 100-5, FSR, Operations.
- FM 100-10, FSR, Administration.
- FM 100-15, FSR, Larger Units.
- FM 101-5, SOFM, The Staff and Combat Orders.
- FM 101-10, SOFM, Organization, Technical and Logistical Data.

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